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ADVANCED CONCEPTS OF NAVAL ENGINEERING MAINTENANCE TRAINING
VOLUME II. APPENDIX F

ESSEX CORPORATION

PREPARED FOR
NAVAL TRAINING EQUIPMENT CENTER

May 1976

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ADVANCED CONCEPTS OF NAVAL ENGINEERING MAINTENANCE TRAINING

VOLUME II of II

ESSEX CORPORATION 201 North Fairfax Street Alexandria, Virginia 22314

Final Report, Appendix F, for Period June 1974 - July 1975

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Maintenance Training Marine Engineering Training Device Technology Task Analysis

Training Requirements

20. ABSTRACT (Continue on reverse side if neces ary and identify by block number)

This study was concerned with the feasibility of applying various recent advances in instructional technology to maintenance training in the area of marine engineering. The study is divided into four principal sections: requirements analysis, media selection, training system description, and system development planning.

The requirements analysis identified all requirements which affect decisions concerning the use of instructional technology. Baseline job

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requirements were established for a representative course of maintenance instruction, the Hagan Automatic Boiler Control (ABC) course. These job requirements also included the tasks, skills, and knowledges for all relevant Hagan ABC maintenance functions.

This analysis was also utilized in the establishment of course requirements including course phasing requirements and course content segmentation. Finally, training system requirements were developed which identified system capabilities required to meet course requirements.

The media selection technique which was developed for this study is a procedure for evaluating candidate media/method approaches in terms of relative effectiveness, usability, and dollar cost. The delphi method was used to rate alternate media on specific criteria, to establish the relative importance (weighting) of criteria for each training objective, and to integrate the ratings and importance weights.

The proposed engineering maintenance training system incorporates an audiovisual element and a programmable, modular simulator. A set of functional specifications and software requirements for the proposed system were developed.

### SUMMARY

This Appendix presents the results of analyses to develop operational sequences and training requirements for:

- . Fault analysis and troubleshooting
- . Hot and cold plant inspection
- Planned maintenance

It was planned to analyze the calibration and repair area, but data for that analysis were not available

### SKILL TAXONOMY

MOTOR SKILL (MOT)

Involves a mechanical manipulation of tools or controls

PERCEPTUAL SKILL (PER)

Involves assimilation information from display or indications

PERCEPTUAL MOTOR SKILL (PER-MOT) Involves assimilating information from display or indications while manipulating controls

MEMORY SKILL (MEM)

Capacity to recall set points ranges readings etc.

PERCEPTUAL-MEMORY SKILL (PER-MEM)

Capacity to evaluate acceptibility of display

DIAGNOSTIC SKILL (DIAG.)

Capacity to infer malfunctions from more than one information source

TEXTUAL RETRIEVAL (TEXT)

Ability to locate textual material using table of contens, indexes, tables, schedules, etc.

KINESTHETIC SKILL (KINES)

Ability to perform a function by feel with no visual guidance

ORGANIZATIONAL SKILL (ORGAN.)

Ability to organize work tools and unit components in an orderly manner leading to more effective utilization, reduced lost time, increased efficiency following maintainance and fault analysis procedures

### ABBREVIATIONS AND SYMBOLS

A/M - Automatic/Manual

D/L - Drum Level

F/F - Feed Flow

FDB - Forced Draft Blower

I/P - Input

IAW - In Accordance with

NWL - Normal Water Level

O/P - Out Put

S/F - Steam Flow

STM - Steam

W/O - Without W/ With

XMTR -Transmitter

= - Equal To

≠ - Not Equal To

1 - Increase or Increasing

→ Decrease or Decreasing

7 - Does not Increase

→ - Does not Decrease

4 - Less Than

> - Greater Than

ΔP - Differential Pressure

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AUTOMATIC BOILER CONTROLS
SYSTEMS
FAULT ANALYSIS SEQUENCE

(F.A.S.)

HAGAN

# FAULT ANALYSIS SEQUENCES - INTRODUCTION

Each ault analysis sequence is complete in itself except for places in the sequence where a repair and calibration process is required. The descriptions of repair and calibration sequences were not available. The analysis also make frequent reference to specific subtasks which describe activities associated with reconfiguration of the console. These subtasks (1 through 5) are presented on the following This section contains fault analysis sequences for nine specific failure modes of the ABC Hagan. These sequences were developed from discussions with ABC maintenance personnel and training course instructors. The acalyses include the sequence of tasks, the skills and knowledge associated with each task, the training objectives derived from the skills and knowledges, and other relevant comments.

## UBTASK INDEX

SUBIASK NO(SI)	NO(ST)	TASKS	SkI.i.	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
l. boil	boller Master A/19 FDB A/M STA	Shift 4 way A/m Station from remote manual to auto  1. Parallel Indicators using Compersating Relay Control  2. Turn Transfer Valve 90 to Reset Position	Reramos using pensating relay control in automatic control in automatic	Location of control and indicators	Given an operating console with 4 way A/M stations in remote manual, paralls gages and shift control from manual mode to automatic mode monitor function to ensure console has control in 15 sec without error	
		<ol> <li>Parallel Indicators for Final Alignment Using Compensating Relay</li> <li>Turn Transfer Valve 90°</li> <li>to Auto Position</li> </ol>				
2. Boil	Boiler Master FDB A/M STA	Shifr 4 way A/M station from also to remote manual  1. Parallel indicators using comp relay control	Per mot parallel indicatora using comp relay control in reset position and place control	Location of control and indicators	Given an operative console with 4 way A/M stations in auto., parallel indicators and shift control from auto mode to remote manual and assume control of	
		<ol> <li>Jurn transfer value 90<sup>c</sup></li> <li>to reset position</li> </ol>	in remote manual		function in remote manual mode in 15 sec without error	
		3. Parallel indicators for final alignment using comp.relay				
		<ol> <li>Turn transfer valve 90° to manual position and assume control in manual</li> </ol>				

SKILLS KNOWLEDGF TRAINING OBJECTIVE	Per-mot Parallei Location of control indicators using and indicators relay sender control.		alve 1800 .ion and in remote	Station Given an operating console with to auto 2 way A/M stations in remote 3 way A/M stations in remo			unit in Given a xmtr installed with its isolation valves demonstrate correct procedure to place xmtr	MOT Location of valves	; valve MOT	ne valves <u>MOT</u> Location of valves	ines to <u>Kinc</u> -feel lines to Hot steam or hot are cool ensure no hot steam liquid may severly or liquid damage water	ne <u>MOT</u>	& L.P. sides <u>Per-mot</u> observe vent line as valve 's opened	Sensing line valve	ig value at NOT
TASK	ifting 2 wa	<ol> <li>Parallel indica relay sender</li> </ol>	2. Turn transfer valve 1800 to manual position and assume control in remote manual	Shifting 2 way A/M Station from remote manual to auto	<ol> <li>Parallel indicators using relay sender</li> </ol>	2. turn transfer valve $180^{\rm o}$ to auto position	Placing transmitter unit in service	<ol> <li>Close sensing line valves from source</li> </ol>	2. Open equalizing valve	<ol> <li>Open sensing line valves from source</li> </ol>	4. Allow sensing lines to cool until they are cool to the touch	5. Open L.P. sensing linput valve at xmtr.	6. Vent H.P. & L.P of . itr.	7. Open H.P. Sensiat xmtr.	8. Close equalizing valve at wmtr.
	<ol> <li>FDB Master A/M</li> <li>FO A/M</li> <li>Feed Water A/M</li> </ol>			4. FDB Master A/M FO A/M	ובבר שמרכן ט/ני		5.Stm. Flow reed Flow Transmitter								

K
SK
CK
3
20

COMMENT'S		boiler during ras and assist maint. man by manipulating controls as directed			le in in itio		Information on sprayer plates installed is obtained from top watch	-1-0-0-4-4-1-1-3-4-4-1-1-3-4-4-1-1-3-4-4-1-1-3-4-4-1-1-3-4-4-1-1-3-4-4-1-1-3-4-4-1-1-3-4-4-1-1-3-4-4-1-1-3-4-4
TRAINING OBJECTIVE	Given an operating console with FDB am/sta in manual control of console and manipulate	confrois to reproduce the event symptoms within 1 min to 100% accuracy.	[ 3T 4 ]	[ST 1]	Given an operating console with Fuel/Air Ratio at an incorrect value, identify sprayer plates installed and readjust Fuel/Air Ratio to correct setting in 30 sec w/no procedural error.		Given ouriscope indication of black smoke, verify stack condition by using smoke density meter in 30 sec 100% accurate.	
KNOWLEDGE	Operational	ST 1 }	ST 4 ]	ST 1 1	Correct setting is 50% with overload sprayer plates installed and 56-60% with normal sprayer plates		Appearance of periscope when stack is smoking black location of periscope and density meter (periscope by console density meter on console)	Location of smoke density meter
SKILL	Organ-relieves operator C on portion of control under consideration	Per mot [ ST 1 ]*	ST 4 1 [	ST 1 ] [	Per-mot memory-adjust fuel/air ratio knob while observing gage for correct setting (excess air adjconsole)		ner.	ਸ਼ਤਰ
TASK	Take Control of console from operator	Reproduce trouble Return FDR A/M stato Company	Shift FDB Master A/M sta. to Auto [ ST 4 ] [	Shift fo A/M Sta. to auto [ST]]	Readjust fuel/air ratio to normal setting	2.4.1 Turn excess air ad- juster knob and ob- serve gag: move to normal %	Observe reproduced event	2.5.1.Observe periscope to verify black smoke
	-	2.1	2.2	2.3	2.4	2.4.1	2.5	2.5.1
EVENT	Inability to steam in auto with a clear stack 1.3.1 Black Smoke	or smoke density alarm						

COMMENTS				
TRAINING OBJECTIVE		console, elimate upstream fo loop by observing FO demand signal to be # to or < air flow signal in 5 sec. to 100% accuracy	From an operating console that displays AlO demand signal > He air flow signal determine that the trouble is located in the upstream oil loop and that the low signal selector is the indicated component in one minute to 100% accuracy	Given an operating console into which a low signal selector fault has been placed isolate and remove faulty componet in 10 mins. With no procedural errors
KNOWLEDGE	System operation	System overation when FO signal is = to or {air flow signal, up- stream oil loop is eliminated as a source of trouble	System operation when FO demand signal is > air flow signal trouble is in up stream oil loop and com- poner indicated is iow signal selector (low sig. select- or-under console)	
SKILL	Dlag.	Diagobserve fuel System overatt demand and air flow when FO signals to determine is = to or <a href="to-object">to-object</a> is = to or <a href="to-object">to-or<a href="to-object">to-or</a> stream oil loop stream oil l</a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a>	Diag observe FO demand and air flow signals to determine if trouble is located up stream or down stream of FA A/M Sta.	
TASK	Make observations on console front to determine fault checks lu-signal selector observe fuel demand and air flow signing	Determine that fuel demand signal is = to or < air flow signal, (if fo demand sig ls . to or < air flow signal proceed to 1.3.1.3.2)	Determine that FO signal is > airflow signal	Correct fault in low sig. selector
	m	3 1.1	3.1.2	3.1.3
EVENT	1.3. Saoke			

Remove low signal selector from system

3.1.3.1

			NAVTRAI	EQUIPCEN 74-	C- <b>0</b> 151-1	ere	insert	
COMMENTS						In all procedures where hand tools are required	cools list will be included With cal and repair insert	
TRAINING OBJECTIVE	į.						[ ]	Given a repair and recalibrated low signal selector reinstall in system within 10 min.
KNOWLEDGE	[ ST 3 ]	[ST 3] console is now in two knob remote manual control	Location of system isolation valves (under console)	[ ST 2 ]	Location of controls low basignal selector. Input signals are now isolated		_	
SKILL	[ ST 3 ]	[ ST 3 ]	ž Ž	[ ST 2 ]	Per-mot turn comp relay Location of knob on boiler master controls low atta in decrease directionsignal selector while observing gage. input adjanals (boiler master sta. on are now isolated console)	MOT use hand tools to disconnect and remove	[ ]	
TASK	Shift PO A/M Sta.to manual [ ST 3 ]	Shift FDB Master A/M Sta.to manual[ST 3]	Shut Supply air to excess air adjuster	Shift boiler master A/M Sta to Man. [ST 2]	3.1.3.1.5 Decrease Boiler master E output signal to zero k	Disconnect and remove to low signal selector	3.1.3.1.7 [ Insert calib and repair] *	Reinstall and reconnect low signal selector in system
	3.1.3.1.1	3.1.3.1.2	3.1.3.1.3	3.1.3.1.4	3.1.3.1.5	3.1.3.1.6 D	3.1.3.1.7	3.1.5.1.8 1
VENT	1.3.1 Black Smoke							

Brackets indicate skill, knowledge, and training objectives are still to be developed for these inventory items.

COMMENTS						
TRAINING OBJECTIVE '	Given an operative console from which low signal selector fault has been removed determine from console front indications that unit is operating satisfactorily		<b>.</b>			is emote 11er on
KNOMLEDGE	System operation	Sys operation auto indicator on FO A/M station should remain at zero	Sys oper-auto indication on FO A/M sta should track with boiler master indication up to air flow indicator then stop. Even though boiler master indication continues to		[ SI 4 ]	ST 4   cousole is now in the knob remote man courrol on beller master A/M station
SKILL	Diagobserve cousole indic as unit is put back in service to determine if corrective actions are sucessful	<u>жак/10к</u>	Zer-moc/MEN	<u>Per-mot</u>	[ ST 4 ]	[ ST 4 ]
IASK	Evaluate results of corrective actions	tpen air supply to excess air adjuster	Increase manua; out put signel on boller master A/M station to a point above air flow indication	Parallel boiler master indicators	3.1.4.4 Shift FO A/M sta to auto [ST 4]	3.i.4.5 Shift FDB master to A/M sta to auto [ ST 4 ]
	3.1.4	3.1.4.1	3.1.4.2	3.1.4.3	3.1.4.4	3.1.4.5
EVENT	1.3.1 Black Smoke					

1.3 FAS 5				deman	UIPCEN 74-C-0151-1		
COMMENTS				There is some variation in valves for plant demand vs. blower speed on different plants.	,		
TRAINING OBJECTIVE	Given an operating onsole with fault corrected determine from console front smoke density meter that system now has ability to steam with clear stack				When blower Given an operating console speed are not with a display indicating compatible with plant demand not compatpant demand able with blower speeds identify indicates troublaupstream air loop as the upstream air sec. to 100% accuracy	[ ST 2 ]	i sr 3 i
KNOWLEDGE	Sys. operation			When blower speeds are compatible with plant denand upstream air loop is eliminated as a source of trouble	When blower speed are not comparible with plant demand indicates trouble is located in upstream air loop	sr 2	[ ST 3 ]
SKILL	Per MEM observe console parameters and periscope/amoke density meter for sat. oper.			Diag. observe blower tachometers and compare with plant demand to determine acceptibility (tachs on console)	Diag. observe blower tachometers and compare with plant demand to determine accept- ibility (tach on console)	[ ST 2 ]	[ST 3]
TASK	Observe System response in that stacks are clear and there is no smoke density alarm	Return control of console to operator	Observe blower speeds	Observe blower speeds sre compatible with plant demand proceed to 1.3.1.3.3	Observe blower speeds are not compstible with plant demand	Shift Boiler master A/M sta to manual [ ST 2 ]	Shift FO A/M sta to manual [ST 3]
	3.1.4.6	3.1.4.7	3.2	3.2.1	3.2.2	3.2.2.1	3.2.2.2
EVENT	1.3.1 Black Smoke						

COMMENTS						
TRAINING OBJECTIVE	[ ST 3]			Given an operating console with a display indicating excess atr adjuster a to air flow xmtr. output identifys that the source of trouble is in the air flow xmtr. in 10 sec to 100% accuracy	with a display indicating excess air adjuster ≠ to air flow xmtr. output identifies that trouble is located in excess air adjuster	Given an operating console into which an excess air adj. fault has been placed. Isolate and remove faulty component in 10 mins. With no procedural errors
KNOWLEDGE	ST 3  Console is now in two knob remote manual control	Location	Location (A/F xmtr. O/2) (Excess air adj. O/D under console)	When excess air adjuster output = to air flow xmtr output indicates trouble is in air flow xmtr.	When excess air adjuster and air flow xmtr. outputs are # indicates that trouble is in excess air adjuster	(Excess air adjuster under console)
SKILL	[ST 3.]	<u>Per mot</u> -adj. observe gage	Per-	Diag. observe excess air adjuster and air flow xmtr output to determine if they are equal	Diagobserve excess air adjuster and air flow xmtr outputs to determine if they are #	
TASK	Shift 1DB Master A/M Sta to manual   ST 3	Adjust excess air adjuster to 50%	Observe excess air adjuster and air flow xmtr. outputs	32.5.1 Determine that excess air adjuster output is to air flow xmtr. out put proceed to 1.3.1.3.2.5	Determine that excess air adjuster ≠ air flow xmtr output	Correct fault in excess air adjust.
	3.2.2.3	3.2.2.4	3.2.2.5	32.5.	3.2.2.5.2	3.2.3
EVENT	1.3.1 Black Smoke					

S
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TRAINING OBJECTIVE COMMENTS				Given a repaired and recalibrated excess air soluster reinstall in system in 10 min. With no procedural errors.	Given an operating console from which excess air adjuster fault has been removed, determine from console front indications that unit is operating sat.			[ ST 4 ]	
TRAI	ej.	Li di		Given a excess a in syste procedur		put mtr.			
KNOWLEDGE	Location (A/F xmtr-space exc. air adj. under console)	Location of excess air adjuster under console			Sys operation .f is-	Sys. oper. excess air adjuster output should now be = to air flow xmtr. output		[ST 4]	[ CT / 1
SKILL		Moruse hand tools to disconnect and remove			Diag observe console indications as unit is put back in service to determine if corrections are successful			[ST 4]	į
TASK	Shut air supply to air flow xmtr. and excess air adjuster	Disconnect and remove excess air adjuster	Insert calibration and repair	Reinstall and re- connect excess air adjuster	Evaluate results of corrective actions	Open supply air to air flow xmtr. and excess air adjuster	Parallel indicators on boiler master A/M stat.	Shift FO A/M sta to suto [ST 4]	24 242 N/ 4 802 49713
	3.2.3.1	3.2.3.2	3.2.3.3	3.2.3.4	3.2.4	3.2.4.1	3.2.4.2	3.2.4.2	
EVENT	1.3.7 Black Smoke								

COMMENTS		NAVTRA	EQU IPC	EN 74-C-	This T/O is split because in some cases the air flow wantr may be repaired in	place using a portable cest unit. The insert will make provision for both portable and fixed test units.		
TRA:NING OBJECTIVE	Given the operating console with excess air adjuster fault corrected determine from console front indications, periscope and smoke density meter that system now has ability to steam with clesr stack in 3 min.				Given an operating console into which an air flow xmir. fault has been piaced isolate faulty component within 3 mins. with no procedural errors		Given an operating console in which an air flow xmtr. fault has been isolated, remove air flow xmtr. from system in 5 mins. with no procedural errors.	
KNOWLEDGE	Sys. operation	[ ST 1 ]		Appearance of periscope when stack is smoking	(A/F xmtr. in space)	Location	Location of air flow xmtr. under console	_
SKILL	Per MEM - observe console parameters and per- iscope/smoke density meter for sat. op- eration	l ST 1		Per-observe periscope and verify with smoke density meter		<u>थं</u> टर	Mot-use hand tools to disconnect and remove	[ ]
TASK	Observe system response in that stack is clear while manipulating system in one knob control	3.2.4.4.1 Shift boiler master A/M sta.to auto [ST 1]	3.2.4.4.2 Return control of console to operator	Observe that periscope is not clear	Corract fault in air flow xmtr.	Shut air supply and sensing lines to dir flow transmitter	Disconnect and remove air flow xmtr.	[Insert Cal and Rep.]
	3.2.4.4	3.2.4.4.1	3.2.4.4.5	3.2.4.5	3.2.5	3.2.5.1	3.2.5.2	3.2.5.3
EVENT	1.3.1 Black Smoke							

EVENTS 1.3.1 Black Smoke

	TASKS	SKILLS	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
3.2.5.4	Reinstall and reconnect air flow xmtr.	reconnect $\frac{Mot}{reinstall}$ and reconnect		Given a repaired and recalibrated air flow xmtr. reinstall and reconnect in system in 5 min. with no procedural errors	
3.2.5.5	Open air supply and sensing lines to air flow xmtr.	Mor	Location		
3.2.5.6	Farallel boiler master A/M sta. ind/cators	Per not			
3.2.5.7	Shift FO A/M to auto [ST 4]	{ ST 4 }	[ ST 4 ]		
3.2.5.7	Shift FDB A/M sta to auto [ST 4 ]	[ ST 4 ]	[ ST 4 ] Console is now in one knob re- mote man. contro	[SI 4] Console is now Given an operating console in one knob re- with air flow xmtr, fault more man, controlremoved determine from console	
	Stack not clear procede to 1.3.1.3.3		on boller master A/M sta.	on boiler master front indications, perisco,e A/M sta. and smoke density meter that system now has ability to steam with clear stack in 3 min.	
3.2.5.8	Shift boiler master A/M sta.to auto [ST 1]	[ ST 1 ]	[ ST 1 ]		
3.2.5.9	Return control to opera- tor Observe steam atomization press.	, u			
3.3.1	Observe steam atomizati press. to be at desired value. Proceed to 1.3.1.3.9	atomization <u>DiagMEM</u> observe stim-Steam pressure it desired ulation press, to deter-is 2 psi below of to mine acceptibility of oil pressure gage reading when com- up to a max. of pared to oil press. 80 psi stm. (Steam & oil gages press, steam on console) sys. is eliminated as a source of trou	Steam pressure -is 2 psi below oil pressure up to a max. of 80 psi stm. press. steam atom control sys. is elim- inated as a scurce of trouble	Given plant indication of incorrect steam atomization press. in relation to oil press. determines that steam atom. control system is operating properly within 1 min.	

COMMENTS						
TRAINING OBJECTIVE	Given plant indication of incorrect stm. atom. press. in relation to oil press. determines that stm. atom. control sys. is not operating properly within 1 min.	Given plant indications of faulty stm. atom. control sys. localizes fault within 3 min.				Given an operating consolutivat displays rapid response at DPPC to changes in FO press, determines that trouble is located down stream of DPPC in 1 min.
KNOWLEDGE	Stm. press. is not 2 psi below oil press in- dicates stm. atom. control system is source of trouble		ST 2	Location of Control		Rapid responses of DFPC to changes in FO press. indicates trouble located down stream of DPPC and that volume booster is next componet downstream ponet downstream
SKILLS	Diag. MEM observe stim. atom. press. to deter- mine acceptibility of gage reading when com- pared to oil p.ess (Steam and oil gages on console)		ST 2 1	Per-mot tur comp relay Location of on boiler master A/M Control sta. in decrease direction until press. drops below 82 psi	Diag. MEM observe DPPC output compared to FO press, to deter- mine acceptibility (Gage at DPPC in space)	Diag. MEM observe DPPC output compared to FC press. to deter. mine acceptibility
TASKS	Observe steam atomization pressure is not desired value	Localize fault in stm. acom. control system	Shift boiler master A/M sta. to man. [ST 2]	Vary output from boiler master A/M sta. to cause FO press. to decrease below 82 ps1	Observe response of differential pressure pilot controller (DPPC) out to changes in FO press.	Output of DPPC responds rapidly to changes in FO pressure proceed to 1.3 2.3.5
	3.3.2	3.4	3.4.1	3.4.2	3.4.3	3.4.3.1
EVENTS	1,3 : 3lack Smoke					

1.3.1 Black Smoke

	TASKS	SKILLS	KNOWLEDGE	TRLINING OBJECTIVE	COMMENTS
3.4.3.2	Output of DPPC does not respond rupldly to changes in FO press.	Diag. MEM observe DPPC Lack of response output compared to oil of DPPC indicates press. to determine trouble located acceptibility in DPPC	Lack of response of DPPC indicates trouble located in DPPC	Lack of response Given an operating console of DPPC indicates that displays no or little trouble located response from DPPC deterin DPPC mines that trouble is located in DPPC in 1 min	
3.4.4	Correct fault in DPPC				
3.4.4.1	Shift control of stm. atom. control valve to local. manual	Moruse stm. atom. control value hand wheel to shift con- trol to lucal man.	Location of stm. atom. control valve (in space)	Given an operating console in which a DPPC fault has been placed isolate and remove faulty DPPC within 5 min. with no procedural errors.	
3.4.4.2	Shut supply air to DPPC	Mot	Location (at nPPC)		
3.4.4.3	Shut inlet 6 outlet valves to DPPC	Mot	Location (at uPPC)		
3.4.4.4	Disconnect & remove	Mof-use hand tools to disconnect & remove	Location of DPPC in space		
3.4.4.5	[Insert cal. & repair]	-	[ ]		
3.4.4.6	Reinstall & reconnect	Mor-use hand tools to reinstall & reconnect		Given a repaired 6 recalibrated DPPC. reinstall and reconnect in sys. in 5 min. With no procedural errors.	
3.4.4.7	Open supply air to DPPC				
3.4.4.8	Open inlet & outlet valves <u>Mr</u> t to DPPC	Mos	Location	Given a reinstalled $\delta$ reconnected DPPC, delsolated $\delta$ return to service in 3 min.	
3.4.4.9	Shift control of stm. stom. control valve to auto	र्ग रे	Location		

COMMENTS	EC							
TRAINING OBJECTIVE	Given an operating console with DPPC fault removed determire from console front indicatons and stm. atom. press. that stm. atom. control system is operating properly	[ST 1]			Given a display on an operating console on which volume booster and DPPC outputs are metermine that volumes are booster is not the source of trouole I min.	Given a display on an operating console on which volume booster and DPPC outputs are # determines that volume booster is the source of trouble in 1 min.		Given an operating console in which a volume booster fault has been placed. isolate and remove volume booster in 5 min with no procedural crrors.
KNOWL EDGE	Stm. atom. control sys. press. at 2 psi below oil press. up to a max of 82 psi oil press.	[ST 1]		(At volume booster in space)	When volume booster and DPPC output are # volume booster is filminated as a source of trouble and stm. asst. valve is not componet	When volume booster and DPPC outputs are # source of trouble is in volume booster		Location of stm. atom. control valve
SKILLS	DiagMot observe oil press. and stm. atom. press. while operating sys. in one knob control	[ST 1]			Diag. observe outputs of volume booster and DPPC to be managed to be be a series of the beautiful to be managed to	<u>Diag.</u> observe outputs of volume booster and DPPC to be ≠		Mor-shift centrol of stm. atom control valve to location using hand wheel
[ASKS]	Cbserve stm. atom. control ys. to maintain correct stm. pressure while man- ipulating system in one knob control	Shift boiler master A/M sta. to auto. [ ST 1 ]	Return atrol to operator	erve Volume hooster output	Output of volume booster a to output of DPPC proceed to 1.3.1.3.7	Gur of volume booster ≠ to output of DPPC	Corrects fault in volume booster	Shift con"rol of stm. atom. control valve to local man.
	3.4.4.10	3.4.4.11	3.4.4.12	3.5	3.5.1	3.5.2	3.6	3.6.1
EVENTS	1.3.1 Black Smoke							

1.3.1 Black Smoke

EVENTS		TASKS	SKILLS	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
1.3.1 Black Smcke	3.7.1	Produce variations in volume booster output	Per not			
	3.7.2	Ubserve st. atom control valve closed with a 3 psi signal and open with a 15 psi signal from volume booster proceede to 1.3.1.3.9	Per mot varies volume booster signal while observing stm. atom. control valve	Lack of valve response to signal trouble is located in valve	Given an operating console and an operating stm. atom. control valve determine that valve moves correctly in response to output signal from volume booster	
	3.7.3	Observe stm. atom. control valve does not open or close in response to signal	Per mot varies volume booster signal while ob erving stm. atom. control valve	Lack of valve response to signal trouble is located in valve	Given an operating console and an operating stm. atom. control valve in which a stm. atom. control valve fault has been placed determine from volume booster output an control valve movement that stm atom. coutrol valve is not operating properly an trcuble is located in control l min.	
	3.8	Corrects fault in stm. atom. control valve			Given an operating stm. atom. control valve in which a fault has been placed isolate stm. atom cont. valve in 3 min.	
	3.8.1	Shift control of stm. atom. control valve to local manual	Mot using hand wheel to set control in local manual	Location		
	3.8.2	Shut air supply valve to volume booster	Mot	Location (at stm. atom.) (Control valve space)		
	3.8.3	[ Insert cal & repair }	[ ]	[ ]	1	
	3.8.4	Open air supply valve to volume bocster	Mot	Location	Given a repaired stm. atom control valve delsolate and return to service in 3 min.	

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COMMENTS							
TRAINING OBJECTIVE		Given an operating console and an operating stm. atom. control system determine that system now has ability to steam with stack clear			der	Location of data Given a display indicating table in navy correct characterizing relay ships tech. man—input & output utilizes tech. ual: that manual information to compare trouble is lo—input with output to detercated downstream mine acceptibility of indications of char. relay within 5 min 100% securate (F/O A/M on console & relay 0/P under	chat Given a display indicating chat incorrect char. relay output, is utilizes tech. manual information in char, to determine injications are char. not acceptable and that characterizing ounted relay is the trouble source output 5 min 100% sccurate
KNOWLEDGE			[ ST ]		(Gage under console)	Location of data table in nay ships tech. manual: that trouble is located downstream of char. relay (F/O A/M on console)	Location data table: chat trouble is located in char. relay (char. relay mounted under console)
SKILLS	Mot-use hand wheel to take srm atom. control valve out of location man. and return to auto.		' ST 1 ]			Diag text ret_ex- tracts input vs. out- put dsta from calibra- tion data tsble and compares input-output for acceptibility	Dias /text_ret.ex- tracts input vs. out- put data from calibra- tion data table and compares input-output for acceptibility
TASKS	Shift control of stm. atom. control valve to auto.	Observe that stm. atom. control valve moves in response to volume booster output when system is manipulated in one knob control	Shift beller master A/M sta. to auto.	Return control to operator	Observe characterizing relay output	Coserve characterizing relay output to correspond with input with calibration data table proceed to 1.3.1.3.10	Observe characterizing relry output does not correspond to input as per data table
	3.8.5	3.8.6	3.8.8	3.8.9	3.9	3.9.1	3.9.2
EVENTS	1.3.1 Black Smoke						

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EVENT		TASKS	SKILLE	KNOWLEDGE	TRAINING OBJECTIVE	COMPLEX
1.3.1 Black Smoke	3,9.2.1	Correct fault in char, relay				
	3.9.2.2	Shift control of FO flow Per mot use hand jack control valve to local on FO flow cont. valve manual using hand jack to take control and observe FO press gage to determine when control in local manuals effected	Per mot use hand jack on FO flow ccat. valve to take control and observe FO press gage to determine when control in local manual is effected	Location of flow out. hand ja. local FO p gage to in space, g on gage bo in space,	of FO Given an operating FO flow valve control valve and indication of and onemal system FO pressure assume press. control of FO pressure in local (valve min. in 3 min. with no prosage cedural errors	
	3.9.2.3	Shut air supply valve to <u>Mof</u> char, relay	<u>Yor</u>	Location (under console)	Given an operating console into which a char, relay fault has been placed isolate & remove chair relay in 5 min. with no procedual errors	
	3.9.2.4	Disconnect & remove char, relay	<u>Mot</u> use hand tools to disconnect & remove	Location of char, relay under console		
	3.9.2.5	[Insert cal & repair]	[ ]	[ ]		
	3.9.2.6	Reinstall & reconnect char, relay			Given an operating console and a repaired & recalibrated char, relay reinstall & reconnect in system in 5 min. With no procedural errors	
	3.9.2.7	Open supply air valve to char. relay	<u>Mot</u>	Location	Given a reinstalled & reconnected char, relay deisolate and return to service in 3 min.	
	3.9.2.8	Shift control of FO flow Per mot use hand jack control valve to remote on FO flow control manual valve to return controt to remote manual observe FO press gage to determine when remote manual control is effected	7 !		Location FO Given an operating FO flow flow cont. val. control valve and indications of 6 local FO press.normal FO system press effect gage. remote manual control in 3 min. with no procedural errors.	

	TASKS	SKILLS	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
3.9.2.9	Shift FO A/M sta. to auto [ST i]	[ ST 1 ]	[ ST 1 ]	[ ST 1 ]	
3.9.2.1	3.9.2.10 Observe that char. relay output now corresponds to input in accordance with data table stack not clear proceed to 1.3.1.3.10	<u></u>		As 1.3.1.3.9.1	
3.9.2.1.	3.9.2.11 Return control to op- erator				
3.10	Observe FO flow control valve		(Valve located in space)		
3.10.1	Observe that FO pressure varies smoothly as FO A/M station output is varies Stack not clear proceed to 1.3.1.3.10.2.3.2	Per mot vary FO A/M sta. output while observing FO press. gage for acceptibility	Location FO press. gage that smooth movement of FO press gage indicates FO flow control valve operating properly (gage on console)	Given an operating console with indication of FO pressure moving smoothly and lesponse to FO A/M sta. output determines that FO flow control valve is not the source of trouble	
3.10.2	Observe that FO pressure does not vary smoothly as FO A/M sta. cutput is varied	Rer mot vary FO A/m sta. output while observing FO press. gage for acceptibility	Location FO press. gage that eratic movement of FO press. gage ind'cates FO flow control valve not operating properly	Given an operating console with indications of eratic FO press in response to volug FO A/M sta output deteimines that trouble is located in FO flow control valve	
3.10.2.1	Shift control of FO flow cont. valve to local manual	<u></u>	<u></u>	1.3.1.3.9.2.1	

1.3.1 Black Smoke

EVENT		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
1.3.1 Black Smoke	3.10.2.2	Crack open FO flow control valve bypass		(By-pass located near F/O ccntrol valve-in space)		
	3.10.2.3	Shut FO inlet value to Mot-close onc FO flow cont. value while while opening opening by-pass to assume to maintain a control of FO press on transition of by-pass	Mot-close one valve while opening another to maintain a smooth transition of control	(Isolation valver located near F/O control valve in-space)	Given an orerating system shift control of FO pressure to the by-pass and isclate FO flow control valve	3 01
	3.10.2.4	Shut F.O. outlet valve				
	3.10.2.5	Disconnect & remove FO flow control valve	<u>Mot</u> use hand tools to disconnet & remove			
	3.10.2.6	[Insert repair ]		[ ]	[ ]	
27	3.13.2.7	Reinstall 4 reconnect FO flow control valve	Mot			
	3.10.2.8	Open FO flow cont. valve outlet valve				
	3.10.2.9	Crack open inlet valve				
	3.10.2.10	Shut by-pass valve while opening inlet valve to assume control of ropressure on FO flow control valve in local manual	[1.3.1.3.1.0.2.3]			
	3.10.2.11	Shift control of FO flow control valve to remote man.	Mot use hand jack to assume control in remote manual			

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EVENTS		TASKS	SKILLS	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
1.3.1 Black Smoke	3.10.2.12	3.10.2.12 [Inscrt Cal for min. oil Press.]	[ ]	-	[ ]	
	3.10.2,13	Shift FO A/M Sta trautol(3T 1) and observe stacks clear	[ ST 1 ]	[sr 1]	[ST 1]	
	3.10.2.14	Return control to operator				

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EVENTS		TASKS	SKILLS	KNOWLEDGE	TRAINING OBJECTIVE	COMPLE
Inability to Steam in Auto with a Clesr Stack						-
1.3.2. White smoke or smoke density alarm	1	Take control of console from operator	Orgrelieves operator on portion of controls under consideration			
	1:1	Reproduces event	Per mot	Symptoms as related by operator	Given an operating console on which operator corrective action has been taken reproduce event within 1 min.	
	1.1.1	Shift FDB A/M sta. to auto [ ST 1]	[ ST 1 ]	[ ST 1 ]	·•	
	1.1.2	Shift FDB master A/M sta. to auto [ ST 4 ]	[ ST 4 ]	[ ST 4 ]		
	1.1.3	Shift FO A/M sta. to suto [ST 1]	[ ST 1 ]	[ ST 1 ]		
	1.1.4	Readjust fuel/air ratio to normal setting by turning excess air adjuster knob and observe gage move to normal % for installed plates	Per mot NKM manifulate fuel/air ratio knob while observing gage for correct setting for sprayer plates installed	Sprayer plates vs % FG/AM ratio - normal setting is 50% with overload sprayer plates and 56-60% with normal sprayer plates	Relationship of sprayer plate size to air volume required to stesm with clear stsck condition	
	1.2	Observe reproduced event				
	1.2.1	Observe periscope 5 smoke density meter to varify white smoke	Per	Location of periscope & smoke density meter (periscope on console meter on console		

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ECTIVE								*	
TRAINING OBJECTIVE									
TRAIN									
	lon								
KNOWLEDGE	Sys. Operation								
K.	Sys.								
SKILLS									
	Diag.								
	uo .	fzing	<b></b>			rol		<u>-</u>	
TASKS	rvstions	aracter ut	edure to in Bla nt		ol to op	ow cont		edure to ) in Bla	
	Make observstions on console	Observe characterizing relay output	inis procedure identical to 1.3.1.3.9 in Black Smoke Event		Return control to op- erator	Observe FO flow control valve operation		This procedure identical to 1.3.1.3.10 in Black Smoke Event	
	Ma Co	Obse	Sa 1.		Return	Observ valve	L	The Lide	
•	7	2:1		<del></del>	2.1.2.9		-		<del></del>
					2.1	2.2			
Ts	1.3.2 White Smoke								
EVENTS	Whit								

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COMMENTS									
TRAINING OBJECTIVE	. ·			Given a FDB A/M station display indicating output = to input determines that A/M station is operating properly in 5 sec.	Given a FDB A/M station display indicating output ≠ to input determinea that A/M station is not operating properly in 5 sec.		[ ST 3 ]	Given an operating blower control, shift control from remote manual to local manual in 3 min. W/O precedural error	Given an operating console with indications of faulty A/M station, isolate & remove the compensating relay in 5 min. with no procedural errors
KNOWLEDGE	Indicates trouble located in air loop			Sys. oper. in- n dicates that A/M stations are operating properly			[ ST 3]	Location of local man. control of blower	(Valve under console)
SKILL	<u>Per</u> observe pariscope			output <u>Diag.</u> - compare cutput in auto.With input (indicators on console)			[ ST 3 ]	Rer mor 1	
TASK	2.2.2.1.3 Shift FO A/M sta to auto \$T 1] stack not clear proceed to 1.3.2.2.3	Return control to operator	Observe FDB A/M station	FDB A/M station output = to input when in auto	FDB A/M station output ≠ to input when in auto	Correct fault in FDB A/M station	Shift FDB A/M stations to remote manual [ST 3	Shift control of blower <u>Per mor</u> associated with faulty FDB A/M station to local manual	Shut air supply to faulty FDB A/M sta.
	2.2.2.1.3	2.2.2.1.4	2.3	2.3.1	2.3.2	2.4	2.4.1	2.4.2	2.4.3
EVENT	1.3.2 White Smoke								

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TRAINING OBJECTIVE	with indications of faulty A/M station, isolate & remove the compensating relay in 5 min. with no procedural error	[ ]	Given a repaired & recalibrated compensating relay, reinstall & reconnect in A/M station & deisolate in 5 min. W/O procedural error	Given an operating blower counted, shift control from local manual to remote manual in 3 min. W/O procedural error	[ST1]	020			Given a display indicating - blower response, determines m that fault is not in down stream air loop in 1 min.
KNOWLEDGE	Location of comp. relay in A/M sta under console	[ ]	Location		[ ST 1 ]				Smooth response of blowers indicate down stream air loop functioning properly and not source of trouble
SKILL	MoL-use hand tools to disconnect & remove comp. relay	] [ ]	Mot use hand tools to reinstall & reconn.	L	[ST 1]			Per	Per Mot - Vary A/M Sta -0/P while observing blown tachs. (Tachs on console)
TASK	Disconnect & remove compensating relay	[ Insert Rep. & Calib.]	Reinstall & reconnect comp. relay	Shift control of affect- ed blower to remote manual	Shift FDB A/M sta. to auto [ST 1]	Stack not clear proceed to 1.3.2.2.5	Return control to op- erator	Observe downstream air loop	Vary FDBA/MSTA O/P and Rer Mor - Vary A/M Sobserve that blowers re-O/P while observing spond throughout range blowsr tachs. (Tachs console)
	2.4.4	2.4.5	2.4.6	2.4.6	2.4.7		2.4.8	2.5	2.5.1
EVENT	1.3.2 White Smoke								

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COMMENTS					
TRAINING OBJECTIVE	Eratic response Given a display indicating of blowers eratic blower response indicates troubledetermines that fault is is located in located in downstream air loop in 1 min.  loop (range mod- under console)		Given a display indicating range modifier 0/P and FDB A/M sta 0/P correspond and a calib, table, determine by comparison that range modifier is not the source of trouble and that FDB governor & emission valve is the only unit left in down stream loop	Given a display indicating range modifier $0/P$ and FDB A/M sta. $0/P$ do not correspond, and a calibtable. Determine by comvarison that range modifier is source of trouble in I min.	Given an operating console in which a range modifier fault has been placed isolate & remove range modifier in 5 min. w/o procedure error
KNOWLEDGE	Eratic response of blowers indicates trouble is located in downstream air loop (range mod-under console)		Location of indications location of calib. data (gages under console) (data in tech. manual)	Location of indications location of calib. data (gages under console) (data in tech. manual)	
SKILL	Per mot vary A/M sta. output while observing blower tachs.		Per/text compare O/P's from range mod- ifier & FDB A/M sta. with data taken from calib, table	Per/text compare O/P's from range mod- ifier & FDB A/M sta. with data taken from calib, table	
TASK	Vary FDB A/M sta. output and observe that blowers do not respond smoothly throughout range	Check range modifier	Check that range modifier Per/text compare O/P corresponds to FDB O/P's from range mod-A/M sta. O/P according ifier & FDB A/M sta. to Calib. table data with data taken from proceed to 1.3.2.2.6 calib. table	Check that range mod- ifler O/P does not currespond to FDB A/M O/P according to calib. data table	Correct fault in range modifier
	2.5.2	2.6	2.6.1	2.6.2	2.7
EVENT	1.3.2 White Smoke				

1.3.2 White Smoke

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	TASK	SKILL	KNOWLEDGE	IKAINIMO OBJECTIVE
2.7.1	Shift FDB A/M sta. to remote manual [ST 2]	[ ST 2 ]	[ ST 2 ]	·
2.7.2	Shift control of affected FDB to iceal manual	[1.3.2.2.4.2]	[1.3.2.2.4.2]	[1.3.2.2.4.2]
2.7.3	Set affected FDB A/M sta.	Per not adjust char relay while observing indentation.		
2.7.4	Shut supply air to range modifier	Mot	Location (under console)	
2.7.5	Disconnect & remove range modifier	Mor-use hand cools to disconnect & remove	Location (Under console)	
2.7.6	[ Insert Rep & calib.]	[ ]	[	[ ]
2.7.7	Reinstall & reconnect range modifier	Mot-use hand tools		Given a repaired and recalibated range modifier, reinstall & reconnect in aystem and delaolate in 5 min. W/O procedural error
2.7.8	Open supply air to range modifier	Mas	Location	
2.7.9	Shift control of affected FDS from local manual to remote manual	Per not		
2.7.1 0	Shift FDB A/M sta. to auto [ST 1]	[ ST 1 ]	[ 1 25 ]	[ ST 1 ]
2.7.1 1	Shift FDB master A/M sta. to auto [ST 4]	[ ST 4 ]	ST 4 ]	[ ST 4 ]

EVENT		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
1.3.2 Cont. White Smoke	2.7.1 2	Observe that range Per text ret. compare modifier O/P new corresponds to FDB A/M sta.O/P with data table O/P law calib. data table table stack not clest proceed to 1.3.2.2.6	Per text ret. compare range mod. 6 A/M sta. .O/P with data table	Location-indicates location dsta table use of data table	Given a display indicating range modifier O/P and FDF A/M sta. 'J/P corresponds Iaw callb. table determine by comparison that range modifier fault has been correct within 3 min. to	
	2.7.1 3	Return control to oper.			100 % accuracy	
	2.8	Check FDB governor & stm. emission valve	Per mot	Location on FDB unit FDBRM	Given a FDB governor 6 stm. emission valve isolate 6 inspect governor and emission valves for possible defects in min. to % accuracy	A positive check for this problem has not been developed
	2.8.1	Shift affected FDB A/M sta to remote manual [ST 2]	Rer mot [ST 2 ]	[ ST 2 ]		
35	2.8.2	Secure affected FDB				This step in the procedure is accomplished watch stander
	2.8.3	Shut supply air to affected range mod- ifier		(Under console at FDB)		
	2.8.4	Shut roof stm. & exhaust valves to FDE				
	2.8.5	Insert calib. & re- pair	[ ]			_
	2.8.6	Open supply air to range modifier				
	2.8.7	Open root stm. & exhaust valves to FDB				

COMMENTS	Watch stander starts FDB				AEQUIPCEN ;	74-0	-015	i-I	
TRAINING OBJECTIVE	-		Given a FDB in which governor and emission valve fsults have been removed. Determine from observations that FDB now respond smoothly to varing FDB A/M sta. 0/P					Indicates that Given son operating console air flow con-that display a "O" psi inteller & air dication on the FDB Master flow rate relayA/M Auto indicator when exare operating cess air adjuster output is properly increased above boiler demand (A/F cont determine from the display relay under that air flow controller & air console.	
KNOWLEDGE				[ ST 1 ]	[ST 4]			Indicates that air flow controller & air flow rate relarate operating Froperly (A/F contrelay under console.	Indicates that trouble is located in air flow controller or air flow rate relay
SKILLS		1		[ ST 1 ]	[ ST 4 ]			Per not observe J/P indications while increasing excess air adjuster O/P	Per not observe O/P indications while increasing excess air adjuster O/P
TASKS	Start FDB (FDB A/M sta. in remote man.)	[ Insert final callb. ]	Observe that FDB now responds swoothly to varing FDB A/M sta. O/P	Shift FDB A/M sta. to Auto	Shift FDB Master A/M sta. to Auto. Stack not clear proceed to 1.3.2.2, 7   ST 4	Return control to operator	Check upstraam air loop	Observe that FDB Master A/M auto input decreases to "O" psi when excess air adjuster output is increased above indicated boiler demand. Proceed to 1.3.2.2.11	Observe that FDB master A/M auto. I/P does not decrease to "O" psi when excess air added juster O/P is increased above indicated boiler demand
	2.8	2.8	2.09	2.8.10	2.8.11	2.8.12	2.9	2.9.1	2.9.2
EVENTS	1.3.2 White Smoke								

*ECTIVE COMMENTS		y indicating relay O/P = r flow con- ine from dis- flow rate ting properly	Given a display indicating air flow rate relay 0/P ≠ to I/P from air flow controller determine from display that air air flow rate relay is source of trouble in 1 min. 100 %			
TRAINING OR TECTIVE		Given a display indicating air flow rate relay 0/P = to I/P from air flow controller determine from display that air flow rate relay is operating properly in 1 min. 100 %				
KNOWLEDGE		That plant must Given a display indication be at steady state air flow rate relay O/P = in order to get to I/P from air flow conair flow rate troller determine from direlay O/P = to play that air flow rate I/P from air flow rate of in 1 min. 100 % eliminate air flow rate relay as a source of trouble	That plant must be at steady state in order to get alr flow rate relay O/P = to I/P from air flow controller to elf'inate air flow rate relay as a source of trouble	Location in system (under console)	[ ST 3 ]	[ST 3] Consule is now in two knob man. control location of valves (under console)
SKILLS		Diag. compare air flow rate relay O/P with I/P from air flow controller (Gages under console)	Diag. compare air flow rate relay O/P with I/P from air flow controller (gages under console)	Per mot	[ ST 3 ]	SI 3
TASKS	Check air flow rate relay	Observing that air flow rate relay 0/P is = I/P from air flow controller	Observe that air flow rate relay $0/P \neq to$ I/P from ai: flow controller	Correct fault in air flow rate relay	Shift FO A/M sta. to remote manual [ ST 3 ]	Shift FDB master A/M sta. to remote manual [ST 3]
	2.9	2.9.3.1	2.9.3.2	2 9	2.9.1	2.9.2

1.3.2 White Smoke

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1.3.2 Cont. White Smoke

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	TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
2.3.3	Shut air supply valves to excess air adjuster, air flow controller and air flow rate	Мог	Location of valves (under console)		
2.9.4	Disconnect & remove air flow rate relay				
2.9.5	[ Insert Reapir & calib	1 ( ) [	[ ]	[ ]	
2.9.6	Reinstall & reconnect air flow rate relay in system	r uu		Given a repaired & recalibrated air flow rate relay, reinstall and reconnect in system and deisolate in 5 min. w/o procedural error	
2.9.6	Open supply air valves to excess air adjuster air flow controller & air flow rate relay	Not	Location of valves		
2.9.7	Shift FO A/M sta. to auto. [ $ST$ 4 ]	[ ST 4 ]	[ ST 4 ]		
2.9.8	Shift FDB master A/M sta. to auto. [ST 4]	[ ST 4 ]	[ ST 4 ]		
2. 9.9	Observe that air flow rate relay 0/P is now = to I/P from air flow controller, stack not clear proceede to 1.3.2.2.9	Diag compare air flow rate relay 0/P with air flow controller 1/P	[1.3.2.2.7.2.1]	[1.3.2.2.7.2.1]	
2.9.1 0	Return control to operator				
2. 10	Check air flow controller	Ŀ.			
 2. 10.11	Observe that air flow controller $0/P\psi$ to "0" psi when indicated air				

1.3 FAS 31

COMMENTS	,							
TRAINING OBJECTIVE	Given an operating console that displays a "O" psi when air flow is f above boiler demand determine from display that air flow controller is not the source of trouble. I min. 100%	Given an operating console that display a value other than "O" psi when air flow is 4 above boiler demand, determine from display that air flow controller is the source of trouble in 1 min. 100%	Given an operating console in which an air flow	controller fault has been placed isolate and remove air flow controller from system in 5 min. W/O procedural error.				
KNOWLEDGE	Sys Oper (A/F co.t. O/P under console Indic A/C on console)		Location in system	[ST 2]	[ST 3]	[ST 3 ] console is now in two knob control	Location of valves (under console)	gSys oper. "O" ps1 on boiler master A/M insulates air signal to air flow controller
SKILL	Diag-per mot compare air flow controller O/P with indicator air flow	Diag	Per-mot	] [ST 2 ]	[ST 3]	[ST 3]	Mot	Per-mot ♥ compensatingSys oper. "O" relay while observing psi on boiler O/P indication. master A/M insulates air signal to air flow controll
TASK	flow is A above boiler demand. Stack not clear proceed to 1.3.2.2.1.1	Observe that air flow controller O/P¼ to "0" psi when indicated air flow is A above boller demand	Corrects fault in air flow controller	Shift boiler master A/M to remote manual [ST 2]	Shift FOB master A/M to remote manual [ST 3]	Shift FO A/M sta to remote manual {ST 3}	Shut supply air to excess Mot air adjuster & air flow controller	Set boiler master A/M at "O" psi
		2.15.2	2.11	2.11.1	2.11.2	2.14.3	2.11.4	2.11.5
EVENT	1.3.2 White Smoke							

		TASK	SKILI	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
2. 1	2. 11.6	Disconnect & remove air flow controller	Mor use hand tools to disconnect & remove	Location (under console)		
2.1	2.11.7	[Inset Cal & repair]		-	[ ]	
2. 1	2. 11.8	Reinstall & reconnect air flow controller	Mot		Given a repaired & recalibrated air flow controller, reinstall reconnect in system & deisolate in 5 min. w/o procedural error	
2.1	2, 11.9	Oper. supply air to air flow controller 6 excess air adjuster				
2.1	11.10	2.11.10 Shift F A/M sta. to auto. [ST 4]	[ ST 4 ]	[ ST 4 ]		
2.1	11.11	2.11.11 Shift FDB master A/m to auto. [ST 4]	[ ST 4 ]	[ ST 4 ]		
2.1	11.12	2.11.12 Shift boiler master A/M to autc. [ST 1]	[ ST 1 ]	[ ST 1 ]		
2.1	2.11.13	Observe that air flow controller U/P now to "O" psi when indicated air flow is ↑ above boiler demand stack not clear proceed to 1.3.2.2.1.1	1.3.2.2.9.1	Sys. oper.	1.3.2.2.9.1	
2.1	11.14	2.11.14 Return control to operator				
2.12	7	Check excess air ad- juster				

1.3.2 coat. White Smoke

COMMENTS						<b>.</b> .	vs	has e faulty rocedural
TRAINING OBJECTIVE	57.2 ]	[ ST 3	' ST 3 1			Given an operating console with a display indicating excess air adjuster " to air flow xmtr. output identifys that the source of trouble is in the air flow xmtr. in 10 sec. to 100% accuracy	Given an operating console with a display indicating excess aid adjuster \$\psi\$ to air flow xmtr. output identifies that Trouble is located in excess air adjuster	Given an operating console into which an excess air adj. fault has been placed. Isolate and remove faulty component in 10 mins. With no procedural errors
KNOWLEDGE	[ ST 2 ]	[ ST 3 ]	ST 3 Console in now in two knob remote manual control	Location	Location (A/F xmtr. O/P) (Excess air adj. 0/P under console)	<u>Diag.</u> observes When excess air adjuster excess air ad- output = to air flow juster and air xmtr. output indicates flow xmtr. out- trouble is in air flow put to determine xmtr.	<u>Diag.</u> - observes When excess air adexcess air ad juster and air flow juster and air xmtr. outputs are flow xmtr. out- # indicates that puts to determine trouble is in excess if they are # air adjuster	(Excess air adjuster under console)
SKILL	[ ST 2 ]	ST 3	[ ST 3	Rer mot-adj. observe gage	Per	Diag. observes When excess air ad- output -juster and air xmtr. flow xmtr. out- troubl. put to determine xmtr. if they are equal	<u>Diag</u> observes excess air ad- juster and air flow xmir. out- puts to determin if they are ≠	
TASK	Shift Boiler Master A/M sta. to manual [ ST 2 ]	Shift FO A/M sta. to manual [ST 3]	Shift FDB Master A/M sta. to manual [ST 3]	Adjust excess air adjuster to 50%	Observe excess air adjuster and air flow xmtr. outputs	Determines that excess <u>Diag.</u> observes air adjuster output is excess air admit of air flow xmtr. out-juster and air put proceed to flow xmtr. out-i.3.2.2.1.2 put to determin if they are equ	Determines that excess air adjuster # air flow xmtr. output	Corrects fault in excess air adjust
	2.12.1	2.12.2	2.12.3	2.12.4	2.12.5	2.12 5.1	2.12.5.2	2.12.6
EVENŢ	1.3.2 White Smoke							

1.3 FAS	COMMENTS				1brated 11	ter er- icationa				ote man. M sta.
· · · · · · · · · · · · · · · · · · ·	TRAINING OBJECTIVE				Given a repaired and recalibrated excess air adjuster reinstall in system in 10 min. with no procedural errors.	Given an operating console from which excess air adjuster fault has been removed, determine from console front indications that unit is operating sat.			[ ST 4 ]	Console is now one kind remote man.
	KNOWLEDGE	Location (A/F xmtr space exc. air adj. under conaole)	Location of excess siradjuster under console			Sya operation	Sys. oper. excess air ad- juster output should now be = to air flow xmtr. output		[ ST 4 ]	[ ST 4 ]
	SKILL		Mor-use hand tools to disconnect and remove			Console indications as unit is put back in service to determine if corrections are successful			[ ST 4 ]	[ ST 4 . ]
	TASK	Shut air supply to air flow xmtr. and excess air adjuster	Disconnect and remove excess air adjuater	Insert Calibration and repair	Reinstall and reconnects excess air adjuster	Evaluate resulta of corrective actions	Open supply air to air flow xmtr. and excess air adjuster	2.12.7.2 Parallel indicators on boiler master A/M stat.	Shift FO A/M sta. to auto [ ST 4 ]	2.12.7.3 Shift FDB A/M ata. to auto [ST 4]
		2,12.6.1	2.12.6.2	2.12.6.3	2.12.6.4	2.12.7	2.12.7.1	2.12.7.2	2.12.7.2	2.12.7.3
	EVENT	1.3.2 White Smoke								

1.3 FAS 35	NAVTRA	AEQU I PC	CEN 74-	C-0151-1	This T/O is split because in some cases the air flow water and be repaired in place using a portable test unit. The insart will make provision for both portable and fixed test units		
COMMENTS					This T/O is in some cas white may be place using unit. The make provis portable an		
TRAINING OBJECTIVE	Given the operating console with excess air adjuster fault corrected determine from console front indications, periscope and smoke denaity meter that system now has ability to steam with clesr stack in 3 min.				Given an operating consolatinto which an air flow xmtr. fault has been place isolate faulty component within 3 mins. with no procedural errors		Given an operating console in which an air flow xmtr. fault has been isolated, remove air flow xmtr. from system in 5 mins. with no procedural errors.
KNOWLEDGE	con- Sys. operation nd lensity	{ ST 1 }		ope Appearance of soke periscope when stack is smoking	(A/F xmtr. in space)	Location (At xmtrspace)	Location of air flow xmtr. under console
SKILL	e Per MEM - observe con- S sole parameters and periscope /smoke density meter for sat, operation	[ ST 1 ]		Per-observe periscope and verify with smoke density meter		Moţ	Mot-use hand tools to disconnect and remove
TASK	Observe system response <u>Per MEM</u> - observe con- Sys. operation in that stack is clear sole parameters and while manipulating periscope /smoke density system in one knob meter for sat. control	2.12.7.4.1 Shift Boiler master A/M sta. to auto {ST 1,	2.12.7.4.2 Return control of console sole to operator	Observe that periscope is <u>not</u> clear	Correct fault in air flow xmtr.	Shut air supply and sensing lines to air flow transmitter	Discennect and remove Mot-use hand tools air flow xmtr. to disconnect and remove
	2.12.7.4	2.12.7.4.	2.12.7.4.	2,12,7,5	2.13	2.13.1	2.13.2
EVENT	1.3.2 White Smoke						

EVENTS		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	1.3 FAS 36 COMMENTS
1.3.2 White Smoke	2.13.3	Insert Cal. and Rep	<b>(</b> )	-		
	2.13.4	Reinstall and reconnect air flow xmtr.	Mot use hand tools to reinstall and re- connect		Given a repsired snd recalibrated air flow xmtr. reinstall snd reconnect in system in 5 min. with	
	2.13.5	Open air supply and sensing lines to air flow xmtr.	Mot	Location	no procedural errors	
	2.13.6	Parallel boiler Imaster A/M sta.	Per Mot			
	2.13.7	Shift FO A/W to auto [SI 4]	ST 4	ST 4 ]		
·	2.13.7	Shift FDB A/M to auto. [ ST 4 ]	. [ ST 4 ]	[ ST 4 ] Console is now in one knob remote man. control on boller master A/M sta.	Given an operating consol: with air flow xmtr. fault removed determine from console front indications, periscope and smoke density meter that	
		Stack not clear procede to 1.3.1.3.3	EI.		ayatem now has ability to steam with clest stack in 3 min.	
	2.14	Observe that white smoke condition has been corrected	noke			
Concludes white smoke event	2.15	Return control to operator	er-			

1.3 FAS 37

COMPENTS	Maintainance man will find feed system in manual and pump control in auto.		NA'	/TRAEQUII	PCEN 74	다. 1510-2-4	hat 50% from ced Ion
TRAINING OBJECTIVE		Given an operating console on which operator corrective aciton has been taken reproduce event within I min.				Sys. oper. feed Given an operating console A/M O/P\$to 100% that indicates feed A/M O/P with \u00e9 water \u00e9 to 100% as water level level indicates determines from the display that trouble is \u00e4 trouble is located upstream of located upstreamthe feed A/M sta. in 1 min of feed A/M \u00e4 100%	Sys. oper. feed Given an operating console that A/M O/P to 100%indicates feed A/M O/P to 100% uith water with water level determines from level indicates display that trouble is located trouble is lo- in feed valve or valve position cated in feed in 1 min 100% position er. (located in space)
KNOWLEDGE		Symptom as re- lated by oper- ator	[ ST 4 ]	Location of indicator (on console)		Sys. oper. feed A/M O/P\$to 1003 with \# water level indicates trouble is located upstres of feed A/M	Sys. oper. feed A/M O/P4 to 1003 with \ water level indicates trouble is located in feed valve or valve position er. (located in space)
SKILL	Org-relieves operator on portion of control under consideration	Per mot	[ ST 4 ]	<u>Per-</u> observe drum le ol indicator		Diagobserves feed A/M O/P while water level to deter- mine if trouble located upstream	to Diagobserves feed A/M O/Pto determine if trouble located down stream
TASK	Take control of console from operator	Reproduce event	Shift feed water A/M sta. to auto [ST 4]	Observe∜water level	Make observation on console	Observe Feed A/M O/P* to 100% proceed to 1.3.3.5	Observe feed A/M O/P to 1002
		<del>ri</del>	1.1.	1.2	7	2.1	2. 2
EVENT	Water Level Excursion	Low Water					

		NA	VTRAEQUIPC	EN 74-C-	0151-1				
COMMENTS			r Watch stander will secure botler botler mist he	secured while positions is 0.0.C. because there is no control year feed flow					
TRAINING OBJECTIVE	Valve positioner Given a display indicating $0/P$ $\Psi$ as $A/M$ $0/P$ valve positioner $\Psi$ as $A/M$ $\uparrow$ indicates trou- $0/P$ $\uparrow$ . determines that $\downarrow$ ble is in valve trouble is located in feed or power device $\downarrow$ min. $100\%$	Valve positioner Given a display indicating O/P vas A/M O/P valve positioner as A/M indicates O/P f, determines that trouble is in trouble is located in valve valve positioner positioner I min. 100%	Given a feed valve positioner in which a fault has been placed, isolate feed valve positioner in 2 min 100%					Deisolate	-
KNOWLEDGE	Valve positioner O/P ♥ as A/M O/P ₱ findicates trouble is in valve or power device	Valve positioner O/P vas A/M O/P findicates trouble is in valve positioner	8		Location (at posit. in space)		Valve positioner is repaired in place	a	Valve positioner is calib. in place using portable calib.
SKILL	Diagobserves feed valve positioner 0/P as A/M 0/P ↑ (posit. 0/P gage at posit. in space)				Mot	Per mot	e] <u>Mot</u> [ ]		
TASK	Observe feed valve positioner O/P as A/M O/P Proceed to 1.3.3.4	Observe feed valve po- sitioner O/P№ as A/M O/P♠	Corects fault in feed valve positioner	secure affected boiler	Shut air supply to affected feed valve positioner	Set feed A!M 0/P a "0"X	Insert repair procedure   MOL	Open supply air to feed valve positioner	finsert calib. procedure }
	2.2.1	2.2.2	e	3.1	3.2	3.3	3.4	3.5	3.5

1.3.3 Low Water

		N/	VTRAEQUIPCEN 74-	-C-0151	1-1			
COMMENTS								W detaolation pro- cedure here because boiler is svill secured and isolation value will rot be opened until boiler is Mt off.
TRAINING OBJECTIVE	Given a repaired & recalib. feed valve positioner, and a display indicating positioner O/P was feed A/M O/Pfdeter- mine that valve positioner is functioning properly in 1 min. 100%		Given a feed flow control valve which does not respond to varing valve positioner 0/P, isolate & repair feed flow control valve. in 1 hour alter boiler is secured					Length of strokeGiven a repaired and recalibrated No deisolation proves. A/M O/P feed flow control valve and a cedure here heavily feed A/M display, manipulste boiler is still feed A/M O/P from 0 to 100% and secured and isolat observe feed flow control valve valve will rot be atroke from fully closed to fully opened until boiler open in response to A/M sta. O/P is it off.
KNOWLEDGE	sys. oper.		Length of stroke vs. positioner output				í	Length of strovs. A/M O/P
SKILL	Per mot	Org.	Diagobserve feed valve stroke in response to valve positioner 0/P				[ ]	Diagobserve feed flow control valve stroke in response to A/M O/P
TASK	Observe positioner O/P∳ as feed A/M O/P†	Inform top watch that boiler is now operational	Observe that feed valve does not position in response to varying valve positioner output corrects fault in feed valve secure affected boiler	Correct fault in feed valve	Secure affected boiler	Close feed flow control valve inlet & outlet valves	[Insert repair & calib.]	Manipulate feed A/M O/P Diagobserve feed from 0 to 100% in remote flow control valve manual-and observe feed stroke in response flow control valve to A/M O/P respond
	3.6	3.7	4	4.1	4.1.1	4.1.2	4.1.3	4.1.4

1.3.3 Low Water

COMPLENT							
TRAINING OBJECTIVE	·			[ST 3]	Given a display indicating S/F int. 0/P = to F/F matr. 0/P, determines from display that S/F matr. 6 F/F matr. are not the source of trouble in 1 min. 100%	:/F xmrr*F/Fxmrr Given a display indicating indicates S/F xmrr. # F/F xmrr. 0/P, trouble is in S/Pdetermines that either S/F xmtr. or F/F xmtr or F/F xmtr. source of trouble	S/F xmtr./F/F Given a display indicating xmtr.O/P vs. plant a S/F xmtr. or F/F xmtr. demand if either that deviates from plant xmtr O/P deviatesdemand by at least ± 10% from
KNOWLEDGE				[ST 3]NML is required for subsquent operations	Sys. oper. if S/F xmtr and F/F xmtr O/P's ara = they are oper- ating properly. Indicators must be within ± 2% at steady static 6 controling NWL in remote manual	S/F wmtr=fF/Fwmtr indicates trouble is in S/i xmtr. or F/F xmtr.	S/F xmtr./F/F xmtr.O/P vs.pland demand if either xmtr O/P devlate + 10% from
SKILL	Ors.			[ST 3]	DiagObserve S/F xmtr and F/F xmtr. O/P's to determine if they are = (gages on xmtrs in space)	Disgobserve S/F xmtr and F/F xmtr. O/P's to determine if they are = (gages on xmtrs in space)	Dieg.
TASK	Inform top watch that boiler is now operation-	(boiler must be put back into service in order to continue FAS)	Observe upstream feed loop	Shift feed A/M to remote manual and remove NWL [ST 3]	Observe S/F xmtr. 0/P = to F/F xmtr. 0/P Proceed to 1.3.3.7	Observe S/F xmtr. O/P # P/P xmtr. O/P	Compare S/F xmtr & F/F xmtr. O/P's with plant demand
	4.1.5		S	5.1	5.2	5.3	4.6
EVENT	1.3.3 Lcy Water						

1.3 FAS 41	COMPLENTS		,	KAVTRAĐQI	JIPCES 7.	4-C-01	51-1		Some xmtrs, may be repaired in place depending on shins configuration		
	TRAINING OBJECTIVE	indicated demand Determines which xmtr. is at steady state malfunctioning in I min. W/4 burners in with 100% accuracy operation indicate that xmtr. Is source of trouble	Given a xmir. into which s fault has been placed equal- ize isolate xmir. in 3 min W/no procedural error						v a v		Given s repaired and re- calibrated xmtr. reinstell & reconnecting 10 min. w/o procedurs! error
	KNOWLEDGE	indicated demand at steady state W/4 burners in operation indi- cate that xmtr, is source of trouble		Location of raives (at xmtr. in space)	Location of valves (in space)		(in space)	Person must be clesr of vent while blowing down		r 1	O U S A
	SKILL				য়তা		Mat	<u>Ver mot</u> observe vent While opening valve	Mor-use hand tools to disconnect & remove	[ ]	
	TASK	Continued	Corrects fault in xmtr.	Open equalizing valve on xmtr.	Shut sensing line valves Mor	Blow down sensing to bilges	Open drain valve	Blow down until all pressure is relieved	Disconnect & remove xmtr   If required	[Insert repair & callb]	Reinstall & reconnect if xmtr. was removed
		4.0	vo	6.1	6.2	5.3	6.3.1	6.3.2	7.9	6.5	9.9

1.3.3 cont. Low Water

EVENT		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
1.3.3 cont.	6.7	Place xmtr. in service	[ ST 5 ]	[ ST 5 ]	[ ST 5 ]	
Low Water	8.9	[ 51 5] Observe S/F xmtr. O/P = F/F xmtr. O/P at → 30 ps1	Dies.	Location	[1.3.3.5.2]	
	6.9	Shift feed \(\delta/\) to auto. Diag. [ST 4] and observe NWL now holds water level still decreases proceed to 1.3.3.7	Diag.	Band of NWL		
	6.1.9	Return control to operator	Orig.			Insert 1.3.4.5]
	7	Check DI xmtr.				
	7.1	Shift feed A/M to man. [ST 3]	[ ST 3 ]	[ ST 3 ]	[ ST 3 ]	
	7.2	Slowly decrease W/L from NWL using feed A/M	Per-mot observe W/L indication as feed A/M comp. relay is turned in decrease direction	NWL location (gage glass)	Given an operating console with feed A/M in manual, decrease W/L in a control commoner while making observetions	
	7.2.1	Observe D/L xmtr. O/F to be 30 ps1 @ NWL & O/P¶as W/L♥	Dieg. (gage at D/L xmtr. in space)	NWL band & safe lower limit	NWL band & safe Given a displsy indicating lower limit a slowly decreasing W/L determines that D/L xmtr. O/P is at 30 psi @ NWL snd that D/L output As W/L Vindicates that D/L xmtr. is not source of trouble in 2 min. 100%	
	7.2.1.1	Restore NWL Proceed to 1.3.3.9	Per mot-raise W/L to NWL by turning feed A/M comp. relay in	NWL band	Given an operating console with feed A/M in manual and a W/L below NWL. raise W/L to NWL in	
		212.617	increase direction		2 min. 100%	

EVENT			TASK		SKILLS	KNOI	KNOWLEDGE	TRAINING OBJECTIVE	TIVE	COMMENTS
1.3.3 cont. Low Water	7.2.2	2.	Observe D/L xmtr. O/P ≠ 30 psi @ NWL \$ O/P∱as W/L ↓	. 0/P <u>Diaz</u> . 0/P <b>才</b> as		NWL I	NWL ban. & sale lower ilmit	le Given a display indicating a slowly decreasing W/L determines that D/L xmtr. O/P 4 30 psi @ NWL & that O/P as K W/L W indicates that D/L xmtr. is source of troublc in 2 min 100%	dicating a w/L deterring of the of th	
	<del>စ</del> ်	Correc	Corrects fault in D/L xmtr.	ntr.				Given a xmt into which a fault, has been placed equalize isolate xmtr. in 3 min. w/no proceudrsleror	ich a fault Ize isolate proceudrsi	
	8.1		Open equalizing valve on xmtr.			Joration of valves (at xmtr. in space)	alves space)			
	8.2		ensing line	Mot		Location of valves (in space)	alves			
	8.3		Blow down sensing to bilges							
	8.3.1	l Open d	8.31 Open drain vlave	Mot		(in space)				
	8.3.2	2 Blow d pressu	8.3.2 Blow down until all pressure is relieved	<u>Per mot</u> observe vent While opening valve	re vent valve	Person must be clear of vent while blowing down	e clear blowing			
	7 <b>°</b>	Disconned move xmtl required	Disconnect & remove xmtr. if required	Mot-use hand tools to disconnect & re- move	cols & re-				<u>.</u> .	Some xmtrs. nrepaired in pending on shooting configuration
	8.5		[Insert repair 5 Calib		-	Ü	_	ų		
	8.0	Reins conve	Reinstall & re- connect if xmtr. was removed					Given a repaired and recalibrated xmtr. reinstall & reconnecting in 10 min. w/out procedural error	recalibrated onnecting in al error	
	8.7	Piace	Place x tr. in service [ST 5]	[ STS]		ST 5 1		STS !		

	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	1.3 FAS 44 COMMENTS
Adjust D/L xmtr. 0/P to 30 ps1 using D/r, xmtr zero spring with W/L at desired level	Par mot	NWL Band	Given a repaired and recal, brated D/L xmtr. in service, adjust D/L xmtr. 0/P to 30 psi uaing zero spring with W/L, at desired level in 1 min. 100%	
Shift feed A/M to auto. [ST 4]4 observe system holding NWL in luto. system will not raintain NWL proceed to 1 1.3.9	[ ST 4 ] n	[ST 4]sys. oper.	[ ST 4 ]	
Return control to operator				
Check D/L totalizer	(under console)			

COMMENT									
TRAINING OBJECTIVE	(ST3)	[1.3.3.7.2]	Given a display indicating a slowly decreasing W/L determines that D/L totalizer $O/P = 30$ psi @ NWL and $O/P \downarrow$ as W/L $\psi$ indicates that D/L totalizer is not the source of trouble and feed flow controller is the only component left in 2 min 100%	[1.3.3.8.2.1.1]	Given a display indicating a slowly decreasing w/L determines that D/L O'P \$\psi\$ 30 psi @ NWL and that O'P as W/L \$\psi\$ indicates D/L totalizer as a source of trouble in 2 min 100%		Given an operating console into which a D/L totalizer fault has been pisced, isolste and remove D/L totalizer in 5 min. w/o error		
KNCWLEDGE	[ ST 3 ]		Sys. oper.		Sys. oper.		Location (at xmtr in space)	Location (under console)	Location (under console)
SKILL	[ ST 3 ]	er mot	<u>Diag.</u> (gage under console)		19g.		MO.F.	Мот	Mat
TASK	Shift feed A/M to manual [ST 3]	Slowly decrease W/L from Per mot NWL using feed A/M	Observe D/L totalizer D O/P = 30 psi @ NWL & s O/Py as W/L ↓	Restore NWL proceed to 1.3.3.1.1	Observe D/L totalizer <u>Diag.</u> O/P 수 30 psi @ NWL & O/탄 as W/L산	Corrects fault in D/L to totalizer	Shut air supply valve M to D/L xmtr.	Shut air supply valve M to S/F F/F relay	Shut air supply valve M to D/L totalizer
	9.1	9.5	9.2.1	9.2.1.1	9.2.2	10	10.1	10.2	10.3

		TASK	SKITT	KNOWLEDGE	TRAINING OBJECTIVE	COMPTENTS
1.3.3 Low Water	10.4	Disconnect & remove D/L Mot use hand tools to totalizer totalizer	Mot use hand tools to disconnect & remove D/L totalizer			
	10.5	[ Insert repair & calib]				
	10.6	Reinstall and reconnect D/L totalizer			Given a repaired & recalib.  D/L totalizer reinstall & reconnect in system and defisolate	
	10.7	Open supply air valve to D/L totalizer				
	10.8	Cpen supply air valve				
	10.9	Open supply air valve to S/F, F/F "relays"				
	10.10	Slowly decrease W/L from NWL using feed A/M			[ 1.3.3.7.2 ]	
	10.10	Observe D/L totalizer O/P now = 30 psi @ NWL & O/P* as W/L &			[ 1.3.3.9.2.1	
	10.11	Shift feed A/M to auto. [SI 4]& observe sys. holding NWL in auto. sys. will not maintain W/L proceed to 1,3,3,1]	[ ST 4 ]	[ ST 4 ]	{ ST 4 }	
	10.12	Return control to oper. Orig.	.81			
	77	Check F/F controller		(under console)	·	

## NAVTRAEQUIPCEN 74-C-0151-1

		NAVTR	AEQUIPCE	N 74-C-0	151-1				
COMMENT	No decision set here since it is last componet in the loop izer /P s					Operator will control W/L in local manual			
TRAINING OBJECTIVE	Given an operating console in which a F/F controller fault has been placed, deter— con mine that F/F controller O/P is eratic W/=1/P from S/F-Z/F relay & D/L totalizer and that F/F controller O/P does not go to 60 psi when D/L totalizer O/P is W.below S/F -F/F relay O/P indicates that F/F controller is source of trouble in 2 min 100%		Given an operating console in which a A/F controller fault has been placed, isolate and remove F/F controller in 5 min	ror					1
T.	Given in whi fault fault Mine t O/P is S/F-F/ and th not go O/P is		Given which has be	w/o error					_
KNOWLEDGE	Sys. oper. (gage under console)		Location (under console)	Location (under console)	Location (under console)	Location (in space)	Location	Location (under con- sole)	-
SKILL			Mot	Mot	Mos	Mot	Per mot	Mot use hand tool to disconnect & re- move	
TASK	Observe that F/F controller Diagper-mot decrease output is not stable W/= D/L totalizer C/P by inputs from S/F-F/F relay turning feed A/M comp. 6 D/L totalizer, and F/F relay in decreasing controller O/P does not direction to decrease go to 60 pai when D/L W/L totalizer O/P is \[ \psi \] below S/F-F/F relay O/P	Corrects fault in F/F controller	Shur supply air valve to S/F-F/P relay	Shut supply air valve to D/L totalizer	Shut supply air valve to P/F controller	Shift control of feed flow control valve to local manual	Decrease feed A/M manual O/P to "O" ps1	Disconnect & remove F/F controller	[Insert repair & calib.]
	11.11	12	12.1	12.2	12.3	12.3	12.4	12.5	12.6
EVENT	1.3.3 cont. Low Water								1

EVENT		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
1.3.3 cont. Inv Water	12.7	Reinstall and reconnect F/F controller	Not		Given a repaired 6 recalib.  F/F controller, reinstalla reconnect in aystem and de- isolates F/F controller in 5 min min. w/o error	
	12.8	Shift control of feed flow control valve to remote manual	Mot			
	12.9	Open supply air valve to F/F controller	Mot			
	12.10	Open supply air valva to S/F-F/f relay	Mot			
	12.11	Open supply air valve to D/L totalizer	MOL			
	12.12	Slowly decrease W/L from NWL	Per not		[1.3.3.7.2]	
	12.13	Observe that F/F controller O/P is stable w/-I/P from D/L total-izer & S/F-F/F relay, a and that O/P to 60 psi when D/L totalizer	Dieg. Per-mct	Sys. oper (E/F cont. 0/P is feed A/M 0/P on console)	Given a display indicating a stable F/F controller O/P when I/P's from D/L totalizer & S/F-F/F relays are ", and that O/P to 60 psi when D/L totalizer O/P is decreased below S/F relay O/P, determines that	
	12.14	Shift feed A/M to auto. [SI 4] and observe sys. holding W/L in auto.			system cna now maintain W/L	
Concludes low water	12.15	Return control to oper.				

COMMENTS	Maintain man. will find feed in man. MFP in auto							
TRAINING OBJECTIVE	·	Given an operating console on which operator corrective action has been taken reproduce event within 1 min.	[ ST 4 ]			feed A/M O/Pd to 0% as W/LA determine that trouble is located upstream of feed A/M in 1 min w/100% accuracy	1.3.4.2.1 Diag, observes5ys. oper. indica- Given a display indicating feed A/M while W/L to the truble is feed A/M O/P to 0% as determine if trouble downstream of W/L A determine that trouble located upstream of A/M feed A/M feed A/M is 1 min. w/100% accuracy.	Given a display indicating positioner O/P# as A/M O/P# determine that trouble is in valve or power device in 1 min. w/100% accuracy
KNOWLEDGE		Symptoms, as related by oper.	[ ST 4 ]	- Location of indic. on console		M Sys. oper. indica- e tes trouble is upsceam of feed A/M	esSys. oper. indica- tes truble is downstream of M feed A/M	Valve position O/p As A/M O/P V indicates trouble is in valve or power device
SKILL	Orgrelieves operator on portion of console under consideration	Per mot	[ST 4 ]	<pre>Per-Observe D/L indica- Location of indic. tor</pre>		Diagobserves feed A/M Sys. oper. indica-while W/L to determine tes trouble is if trouble located up- upsream of feed stream of A/M A/M	1.3.4.2.1 Diag. observes5ys. operfeed A/M while W/L to the trund determine if trouble downstreal located upstream of A/M feed A/M	Diag. observes feed velve position 0/P as A/M 0/P velve
TASK	Take control of console from operator	Reproduce event	Shift feed water A/M [station to auto.	Observe water level	Make observation on console	Observe feed A/M O/P to 0% proceed to 1.3.4.5	Observe feed A/M O/P	Observe feed valve positioner O/P Ass feed A.M O/P V proceed to 1.3.4.4
		1.1	1.1.1	1.1.2	2	2.1	2.5	2.2.1
EVENT	High Water 1.3.4					57		

1.3 FAS 50	COMMENTS		Watch stander will secure	Doller, Doller wist De secured while positioner 18 0.0.C because there 18 no control over feed flow	NAVT	raequ i	(PCES: 74-	C-0151	-1	
	TRAINING OBJECTIVE	Valve posit0/P Given a display indicating as A/M G/P V positioner O/P as A/M O/P V indicates trouble determine that positioner is source of trouble in 1 min. w/100% accuracy	Given a feed valve positioner in which a fault has been placed, isolate feed vlave positioner in 2 min 100%				_	Deisolate	•	Given a repaired & recalib. feed vlave positioner, and a display indicating positioner $0/P \downarrow$ as feed A/M $0/P \uparrow$ deter- mine that valve positioner is functioning properly in 1 min 100%
	KNOWLEDGE	Valve posit 0/P % as A/M 0/P % indicates trouble is in positioner	Ø <b>3</b> ∓ 8		Location (at posit. in space)		Valve positioner is repaired in place	Ã	Valve positioner [ is calib. in place using portable calib set	Sys. oper. 63
	SKILL	1.3.4.2.2.1			Hot	Per Mot	Per Mot 1		-	Per mot
	TASK	2.2.2 Observe feed valve post:ioner O/PM as feed A/M O/PW	Corrects fault in feed falve positioner	Secure affected boiler	Shut air supply to affected feed valve positioner	Set feed A/M O/P a "0"ズ	[Insert repair procedure ]	Open supply air to feed valve positoner	(Insert cailb.	Observe positioner O/P + as feed A/M O/P +
	EVENT	1.3.4 cont. 2. High Water	m <sup>i</sup>	3. 1	3.2	3.3	3.4	3.5		3.6

1.3 FAS 51 COMMENTS			<b>NA</b> V	TRAEC	QUIPCEN	74-C-	No deisolation pro- cedure here because C boiler is still 1 secured and isolation vlave will not be opened until boiler is let off
TRAINING OBJECTIVE		Given a feed control valve which does not respond to varying valve positioner O/P isolate & repair feed flow control valve in 1 hr. after boiler is secured w/no procedural error					Given a repaired and racalibrated feel flow control vlave and a feed A/M display, manipulate feed A/M o/P from 0 to 100% and observe feed flow control valve stroke form fully closed to fully open in response to A/M sta. 0/P in 5 min.
KNOWLEDGE		ed Length of stroke vs. vs.					Length of stroke vs. A/M O/P
SKILL		Diagobserve feed valve stroke in response to valve positioner 0/P				J	Diagobserve feed flow control valve stroke in response to A,M O/P
TASK	Inform top watch <u>Org.</u> that boiler is now operational	Observe that feed valve does not position in response to varying valve positioner O/P	Corrects fault in feed valve	Secure affected boiler	Close feed flow control valve inlet & outlet valves	[Insert repair & calib.]	Manipulate feed A/M O/P from O to 100% in remote manula- and observe feed flow control vlave respond
	3.7	4	4.1	4.1.1	4.1.2	4.1.3	4.1.4
EVENT	1.3.4 High Water						

Inform top watch that boiler is now operational

4.1.5

(boiler must be put back into service in order to continue FAS)

EVENT		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COM
1.3.4 High Water	5	Observe upstream feed loop				
	5.1	Shift feed A/M to manual & reatore NWL [ST 3]	[ ST 3 ]	[ST 3]NWL is required for subsequent operations	[ ST 3 ]	
	5.2	Observe 5/F xmtr. 0/P = to F/F xmtr. 0/P proceed to 1.3.4.5.4	Diagobserve F/F xmtr. Sys. oper. S/F & F/F xmtr. O/P to xmtr. O/P rof indidetermine if they are = xmtr. O/P indidecermine if they are = xmtr. O/P indidecermine if they are = xmtr. O/P indidecermine if they are are properly, algument by within 2% & at steady state	Sys. oper. S/F xmtr. O/P ~ F/F both xmtrs. are operating properity, aignals must be within 2% & at steady state	Sys. oper. S/F Given a diaplay indicating xmtr. O/P ~ F/F S/F xmtr O/P ~ F/F xmtr O/P wtr. O/P indicateadetermine that S/F xmtr. 6 both xmtrs. are F/F xmtrs are not acurce operating of trouble in 1 min w/100% properly, aignals accuracy must be within 2% & at steady state	
	5.3	Observe S/F xmtr. O/P	1.3.4.5.2 <u>Diag.</u> Observe S/F xmtr.  § F/F xmtr. 0/P to determine if they are		Sys. oper. S/F Given a diaplay indicating xmtr. O/P = F/F S/F xmtr. o/P xmtr. O/P indicatesdetermine that S/F xmtr. or both xmtrs are F/F xmtr. is source of trouble trouble trouble trouble trouble trouble 2X at steady	
	5.3.1	Compare S/F xmtr. & F/F xmtr. 0/P's with plant demand	<u>Viag</u> .	S/F xmtr. F/F xmtr. O/P vs. plant demand if either xmtr. O/P deviates + 10% from indicated demand st ateads state w/4 burners in operation indi- cste that xmtr. is source of trouble	Given a display indicating a S/F xmtr. or F/F xmtr. that deviates from plant demand by at least + 10% determines which xmtr. is malfunctioning in 1 min. with 100% accuracy	

5.3.2 Correct fault in S/F xmtr. or F/F xmtr.

				d Code Higher	SHITTMAN BO PARTITION	out out
EVENT		I VON	SAILL	KNOWLEDGE	INAINING OBJECTIVE	COMMENIS
1.3.4 High Water	5.3.2.1	Open equalizing valve on xmtr.		Location of valve (at xmtr. in apace)		
	5.3.2. 2	Shut sensing line valve	Mot	Location of valves		
	5.3.2. 3	Blow down sensing to bilges		(In space)		
	5.3.2.3.1	Open drain valve	Mot	(in space)		
	5.3.2.3.2	Blow down until all pressure is relieved	<u>Per mot</u> observe vent while opening vlave	Person must be clear of vent while blowing down		
	5.3.4	Disconnect & remove xmtr. it required	Mot-use hand tools to dis- connect & re-			Some xmtrs. may be repaid in place depending on shoot configuration
	5.3.2.5	Insert repair & callb.] [			-	
<b>6</b> 1	5.3.2. 6	Reinstall & reconnect if xmtr. was removed			Given a repaired and re- calibrated xmtr. reinstall & reconnecting 10 min. w/o procedural error	
	5.3.2. 7	Place xmtr. in service [ST 5]	[ ST 5 ]	1 ST 5 1	[ ST 5 ]	
	5.3.2.8	Observe S/F xmtr. O/P = F/F xmtr. O/P at ~30 ps1	Diag.	Location	[ 1.3.3.5.2 ]	
	5.3.2.9	Shift feed A/M to auto. ST 4 and observe NWL now holds water level still decreases proceed to 1.3.3.7	<u>01ag</u> .	Band of NWL		
	5.3.2.10	Return control to operator	0r1g.			Insert 1.3.4.5

	TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMPLENTS
5.4	Check S/F-F/Freley				
5.4.1	Observe O/P of S/P-F/F Direley = 30 psi proceed to 1.3.4.5.5	Dieg.	Sys opersys. must be at steedy state w/NWL	Given a display indicating e S/F-F/F raley W/30 pai O/P, datermina that S/F-F/F raley is not source of trouble in 1 min. w/100%	
5.4.2	Observe S/F-F/F relay D. O/P #30 psi w/steady state system.	<u>Diag</u> .	Sys. opersys. must be at steady state W/NML	Given a display indicating a S/F-F/F raley w/O/P # 30 psi, datermine that S/F-F/F ralay is source of trouble in 1 min w/100% accuracy	
5.4.2.1	Shift feed A/M to manuel	[ ST 3 ]	[ ST 3 ]	[ ST 3 ]	
5.4.2.2	Shut supply eir to S/F Mg P/P relay	Řoš	Location of valva	Location of valva Given e display conteining a S/P-F/F reley in which e feult has been pleced, isolete, disconnect & rsmove from system in 5 min.	
5.4.2.3	Shut supply air to S/F xmtr. 6 F/F xmtr.	Mos	Location of valves		
5.4.2.3	Disconnect & remove S/F F/F relay	Mot-use of hand tools			
5.4.2.4	[Inasrt repair 6 calib.]	1	_	-	
5.4.2.5	Install 6 reconnect S/F F/F relay	Mot-use of hand tools		Given a diaplay install, reconnect 6 deisolate S/F = F/F relay in which a fault has been repeired in 5 min. W/o procedural error	
5.4.2.6	Open supply air to S/F-F/F relay	Not	Location of valve		

COMMENTS										
TRAINING OBJECTIVE		1.3.4.5.4.1	1 ST 4 1			[ ST 3 ]	Given an operating console w/feed A/M in man. W/L in e controlled manner while making observetione	Given a diapley indicating D/L xmtr. O/P = 30 psi @ NWL 6 D/L xmtr. O/P as W/L determine that D/L xmtr. is not source of trouble in 2 min. w/100% accurach	Given en operating console w/feed in man. \( \frac{4}{4} \) \( \frac{1}{4} \) in \( \frac{1}{4} \) \(	Given a display indicating D/L xmrr. J/P ≠ 30 psi @ NWL & O/P ← 30 psi www. L f determine that D/L xmrr. ie source of trouble in 2 min. w/100% accuracy
KNOWLEBGE	Location of valve	Sys. oper.	5 7 LS ]			sr 3	NWL band & aafe. up;∵: limit	NWL band 6 safe upper limit	NWL band	NWL band & safe upper limit
SKILL	Mot.	Diak.	1 2 TS 1			[ ST 3 ]	Per mot-observe W/L indicator as feed A/M is turned in increase direction	. <b>629</b> ·	<u>Per mot</u> -lower W/L to NWL using feed A/M	<u> </u>
TASK	Open supply air to S/F xmtr. & F/F xmtr.	Observe S/F-F/F relay C/P = 30 psi w/steady state system.	Shift feed A/H to auto & return control to operating [ST 4]	Fault not corrected proceed to 1.3.4.5.5	Check D/L xmtr.	Shift feed A/M to man. [ST 3]	↑ W/L using feed A/M	Observe D/L xmtr. O/P = 30 psi @ NWL & W as W/L 4	Reatore NWL proceed to 1.3.3.5.6	Observe D/L xmtr. O/P ≠ 30 psi @ NML & O/P ♦ as W/L ↑
	5.4.2.7	5.4.2.8	5.4.2.9		5.5	5.5.1	5.5.2	5.5.3	5.5.3.1	5.5.4
EVENT	1.3.4 High Warer									

D/L xmtr. in service, adjust D/L xmtr. O/P to 30 psi using zero spring with W/L at desired level in 1 min 100%

Given a repaired and reculibrated

NWL band

Per mot

Adjust D/L xmtr. 0/P to 30 ps1 using D/L xmtr. zero spring with W/L at desirel level

5 5.4.1.8

5.5.4.1.4

5.5.4.1

1.3.4 High Water

EVENT

5.5.4.1.6

5.5.4.1.5

C - T	COMMENTS								
	TRAINING OBJECTIVE	[ ST 4 ]			[ ST3 ]		Given a display indicating a D/L totalizer w/O/P = 30 psi @ NWL & O/P as W/L , determine that D/L totalizer is is not source of trouble in 2 min. w/100% accuracy	1.3.4.5.4.3.1	Given a display indicating a D/L totalizer w/ O/P ≠ 30 psi @ NWL & O/P ⊅ as W/L totalizer is source of trouble in 2 min. w/100% accuracy
	KNOWLEDGE	[ ST 4 ]sys. oper.			[ ST 3 ]	NWL & safe band	Sys. oper.		Sys. oper.
	SKILL	3T 4			[ ST 3 ]	Per not	<u>Diag</u> .		D128.
	TASK	Shift feed A/M to auto.   3T   ST 4 % observe system holding NWL in auto system will not maintain NWL proceed to 1.3.3.9	Return control to operator	Check D/L totalizer	Shift feed A/M to man. [ ST 3 ]	Slowly∱W/L using feed A/M	Observe D/L totalizer /P ≠ 30 psi @ NWL & O/P∱as W/L↑	Restore NWL, proceed to 1.3.4.5.7	Observe D/L totalizer O/P ≠ 30 psi @ NwL & O/P ≠ as W/L ♠
		5.5.4.1.9	5.5.4.1.10	5.6	5.6.1	5.6.2	5.6.3	5.6.3.1	5.6.4
	EVENT	1.3.4 High Water							

COMMENTS		ste ror					r olate					
TRAINING OBJECTIVE		Given an opersting console into which a $D/L$ totalizer fault has been place, isolate and remove $D/L$ totalizer in $5$ min w/o error					Given a repaired & recalib. D/L totalizer reinstall & reconnect in system and deisolate				[ 1.3.3.7.2 ]	
KNOWLEDGE		Location (at xmrr. in space)	Location (under console)	Location (under console)								
SKILL		Mot	Mot	Mot	Mot use hand tools to dis- connect & remove D/L totalizer							
TASK	Corrects fault in D/L to totalizer	5.6.4.1.1 Shut air supply valve to $D/L$ xmtr.	5.6.4.1.2 Shut air supply valve to S/F F/F relay	5.6.4.1.3 Shut air supply valve to D/L totalizer	Disconnect & remove D/L totalizer	[Insert repair & calib.]	Reinstall and reconnect D/L totalizer	Open supply air valve to D/L totalizer	Open supply air valve to D/L xmtr.	Open supply air valve to S/F, F/F "relays"	Slowiy decrease W/L from NWL using feed A/M	Observe D/L totalizer O/P now = 30 psi @ NWL & O/P \( \phi \) as \( \psi \)/L \( \psi \)
	5.6.4.1	5.6.4.1.1	5.6.4.1.2	5.6.4.1.3	5.6.4.1. 5	5.6.4.1.5	5.6.4.1.6	5.6.4.1.7	5.6.4.1.8	5.6.4.1.9	5.6.4.1.10	
EVENT	1.3.4 High Water											

	COMMENTS				NAVTRAEQU I PCE	¥ 74-	-C-0151-1			Operator will control W/L in local manual	
	TRAINING OBJECTIVE CO	[ ST 4 ]			Given an operating console in which a F/F cont. fault has been placed, determine that F/Fcontroller is source of trouble in 2 min. w/100% accuracy		Given an operating console in which a A/F controller fault has been placed, isolate and remove F/F controller in 5 min. w/o error			Operator W/L in 1	
WOLT EDGE	MONTEDGE	[ ST 4 ]			Sys. oper.		Location (under console)	Location (under console)	Location (under console)	Location (in space)	Location
SKIII	SALLE	[ ST 4 ]	Orig.		Diag. per mot †D/L tot. O/P by turnin; feed A/M in increasing direction fW/L	ller	HOT.	Mot	Mot	Mot	Per mot
TASK		ii Shift feed A/M to auto. [ST 4 % observe sys. holding NWL in auto sys. will not maintain W/L proceed to 1.3.3.11	12 Relin control to oper.	Check F/F controller	Observe that F/F cont.  O/P is not stable W/= I/P from S/F-F/F relay & D/L totalizer & I/F cont O/P \$\frac{1}{4}\$ to 0 psi when D/L totalizerO/P is \$\frac{1}{4}\$ above S/F-F/F relay  O/P	Corrects fault in F/F controller	Shut supply air valve to S/F-F/F relay	Shut supply air valve to D/L totalizer	Shut supply air valve to F/F controlier	Shift control of feed flow control valve to local manual	5.7.2.4 Decrease feed A/M manual O/P to "O" ps1
		5.6.4.1.11	5.6.4.1.12	5.7	5.7.1	5.7.2	5.7.2.1	5.7.2.2	5.7.2.3	5.7.2.3	5.7.2.4
EVENT		1.3.4 High Water			·						

COMMENTS						
TRAINING OBJECTIVE		1	Given a repaired & recalib. F/F controller, reinstalls reconnect in system and deisolates F/F controller in 5 min. w/o error			
	•	J	Given contro in sys contro			
KNOWLEDGE	der console					
S.	Location (under console)	_				
SKILL		-				
SK	Mot use hand tool to dis- connect & re- move	_	Mot	Hot	Mot	Mot
TASK	5.7.2.5 Disconnect & remove F/F controller	5.7.2.6 [Insert repair & calib.]	5.7.2.7 Reinstall and reconnect F/F controller	5.7.2.8 Shift control of feed flow control valve to remote manual	5.7.2.9 Open supply air valve to F/F controller	5.7.2.10 Open supply air valve to $S/F-F/F$ relsy
		5.7.2.6	5.7.2.7	5.7.2.8	5.7.2.9	5.7.2.10
EVENT	1.3.4 High Water					

5.7.2.11 Open supply air valve Mot to b/L totalizer

Per mot

5.7. 2.12 Slowly decrease W/L from NWL

Given a display indicating a stable F/F controller O/P when I/P's from D/L totalizer & S/F-F/F relays are and that O/P to & O psi when D/L totalizer O/P is decreased below S/F F/F relay O/P, determines that system can now maintain W/L Sys. oper (F/F cont. 0/P is feed A/M 0/P on console) 5.7.2.13 Observe that F/F con- Diag. Per-mot troiler O/P is stable w/-I/P from D/L total-izer & S/F-F/F relsy, a and that O/P to 60 psi when D/L totalizer

[1.3.3.7.2]

5.7.2.14 Shift feed A/M to suto. [ST 4] and observe sys. holding W/L in auto.

5.7.2.15 Return control to oper.

Concludes High water event

COMMENT	Maint. man. will find fuel in manair in man-sboiler master in man.			1	NAVTRA.	EQU I	PCEN 7	4- <b>c-0</b> 151-1		
TRAINING OBJECTIVE	Maint, man. wi in manair in master in man.		[ ST 4 ]	[ ST 4 ]	{ ST 1 }			Given an operating console indicating a decreasing stm. press. determines from display that boiler master 0/P to 100% as stm. press. below 1275 psi indicating that demand loop is not the source of trouble 30 sec. 100%	Given an operating console indicating a decreasing stm. press., determine from the display that boiler master $0/P$ to $100\%$ as stm. press. $v$ below $1275$ psi indicates that trouble is located in demand loop in 30 sec. $100\%$	Given a display indicating boiler master A/M O/P f = 1/P f determines that A/M station is not source of trouble and that problem is located in upstream demand loop in 30 sec. 100%
KNOWLEDGE			[ ST 4 ]	[ ST 4 ]	[ ST 1 ]			Sys. oper. That boiler master A/M should reach 100% as stn. press. to 1265 psi (stm. press gage on console)	Sys. oper. that boller master A/M should reach 100% as stm. press. to 1265 ps1 (stm. press. gage on console)	Sys. oper.
SKILL			Per mot	Per mot	Per mot	Per.		<u>Diag.</u>	<u> </u>	Diag.
IASK	Take control of console from operator	Reproduces event	Shift FO A/M to auto. [ST 4]	Shift FDB master A/M to auto. [ST 4]	Shift boiler master A/M to auto. [ST 1]	Observe ∳ s⁺m. pressure	Make observations on console	Observe boiler master A/M O/P/W/zero bias to 100% as stm. press W below 1275 psi proceed to	Observe boller master A/M O/PÅ to 100% as stm. press.v below 1275 psi	Observe that boller master A/M O/P tracks I/P proceed to 1.3.5.4
	~	1.1	1.1.1	1.1.2	1.1.3	1.1.5	~1	2.1	2.2	2.2.1
EVENT	Steam Pressure Excursion	Stm. Press.								

1.3 FAS	COMMENTS												
	TRAINING OBJECTIVE	Given a display indicating boiler master A/M O/PM↓ I/P√determines that boiler master A/M station is source of trouble in 30 sec. 100%	Given a boiler master A/M sta. in which a fault has been placed isolate, disconnect & remove the comp. relay in 5 min. W/o error	[ ST 1 ]	i sr 3	{ ST 3 }			1	Given a repaired & recalib. comp. relay, reinstall and reconnect in system & defisolate in 5 min. w/o error		{ 7 IS }	[ ST4 ]
	KNOWLEDGE	Sys. oper.		[ ST 1	[ ST 3 ]	[ ST 3 ]	Location (under console)	Location (under console)	-			ST 4	ST 4
	SKILL	<u>Diag.</u>		ST 1	ST 3	[ ST 3 ]	Mot	Mot-use hand tools to disconnect & remove	<b>~~</b>			[ ST 4 ]	[ ST 4 ]
	TASK	Observe boller master A/M O/F does not track I/P	Corrects fault in boller master A/M station	Shift boiler master A/M to manual [ST 1]	Shift FDB master A/M to manual [ ST 3]	Shift FO A/M to manual [ ST 3 ]	Shut supply air valve to comp. relay	Disconnect & remove compensating relay	[Insert repair & calib.]	Reinstall & reconnect comp. relay	Open supply air to comp. relay	Shift FO A/M sta. to auto.	Shift FDB master A/M to auto.
		2.2.2	e	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	3.10
	EVENT	1.3.5 Low Steam Pressure											

COMMENTS									
BUILDELBO CHINIAGE	[ ST 1 ]		1.3.5.2.2.1 ]			Given a display indicating inverting relay $0/P = 60$ psi - $0/P$ of high signal selector determines that inverting relay is not source of trouble & that problem is located upstream of inverting relay in 1 min.	Given a display indicating inverting relay 0/P ≠ 60 psi - 0/P of high signal selector, determines that inverting relay is source of trouble in 1 min. 100%		Given a console into which an inverting relay fault has been placed, isolate disconnect & remove inverting relay in 5 min. W/O error
BOUL FROM	ST 1 ]		Sys. oper.		(under console)	Sys. oper. (gages under console)(High sig. selector under console)	Sys. oper.		[ ST 1 ]
111/15	[ ST 1 ]		<u>Diag.</u>			<u>Diag</u> .	<u>Diag</u> .		[ ST 1 ]
ASSE	Shift boiler master A/M	to auto.	Observe that boiler master A/M O/P now tracks 1/P now stm. press. cond. not cleared proceed to	Return control to oper.	Check inverting relay	Observe that inverting relay O/P = 60 psi-O/P of high signal selector Proceed to 1.3.5.6	Cbserve that inverting relay 0/P ≠ 60 psi = 0/P of high signal selector	Corrects fault in invert- ing relay	Shift boiler A/M to remote manual {ST 1}
	3.11		3.12	3.13	4	4.1	4.2	٧.	5.1
		Low Steam Pressure							

COMMENTS											
TRAINING OBJECTIVE				[	Given a repaired & recalib. inverting relay, reinstall, reconnect in system & demisolate			[ 1.3.5.4.1 ]	[ ST 1]		
KNOWLEDGE	Location of valve (under console)	Location of valves (in space at controllers)	Location of invert, relay under console	[ ]		Location	Location		[ ST 1 ]		
SKILL	Mot	MOE	<u>Mot</u> -use hand tools to disconnect & re- move	Mot	Mot	, in	Mot		[ ST 1 ]		
TASK	Shut supply air valve to inverting relay	Shut supply air valve to "A" & "B" steam pressure controllers	Disconnect & remove inverting relay	[Insert repair & Calib, ]	Reinstall & reconnect juverting relay	Open supply air valve to Mot inverting relay	Open supply air valve to "A" & "B" stm. press. controllers	Observe that inverting relay O/P now = 60 psi -O/P of high signal selector	Shift boiler master N/M to auto.[ST l]	Return control to oper.	Check Stm. pressure controller
	5.2	5.3	5.4	5.5	5.6	5.7	8.8	6.9	5.10	5.11	t
	E										

EVENT		TASK SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
1.3.5 Low Steam Pressure	1.9	Observe that "A" or "B" <u>Diag</u> . stm. press. controller O/P to "O" psi as stm. press. below 1275 psi	Sys. oper. stm. Given a display press. corpress. corroller atm. press. cor 0/P should reach to "0" psi as a "0" psi as atm. below 1275 psi press. reaches that stm. press 1265 pai (0/P is not aource gages at controllera in 1 min. 100% in space)	Given a display indicating atm. press. controller $0/P \psi$ to "0" psi aa stm. preas. $\psi$ below 1275 psi determines that that stm. preas. controller is not aouce of trouble in 1 min. 100%	
	5.	Observe that "A" or "B" <u>Diag.</u> (steam press. gageSys. oper. stm. stm. press. cuntroller on console & gage board)presa. controller of C/P \$\foralle{V}\$ to 0 ps1 as stm. 0/P should reac press. \$\delta\$ below 1275 ps1 press. \$\delta\$ ps1 press. \$\delta\$ ps2 reaches	Diag. (steam press. gageSys. oper. stm. on console & gage board)press. controller O/P should reach O pai as stm. pre· press. reaches 1265	Given a diaplay indicating stm. press. controller 0/P \$\sqrt{\pi}\$ to 0 psi as stm. press. \$\sqrt{\pi}\$ below 1275 psi determines that stm. press. controller is acuree of trouble in 1 min. 100%	
	7	Correct fault in stm. press. controller			
	7.1	Shift boller master A/M { ST 2 } to remote manual [ ST 2]	[ ST 2 ]	Given a steam preasure controller in which a fault has been placed, isolate, blow down, disconnect & remove from system, in 5 min.	
	7.2	Shut supply air valve to MOE affected stm. press. controller	Location of valve (at controller)		
	7.3	Shut steam preas. sensing <u>Mor.</u> ling to steam press. ccn- troller	Location		
	7.4	Shut steam press. sensing <u>Mot</u> line isolation valve at stm. press. controller	Location		

COMMENTS										
TRAINING OBJECT IVE				Given a repaired 6 recallb. stm. pressure controller reinstall reconnect in sys. 6 deisolate in 5 min. w/o error				[ 1.3.5.6.1]	[ ST 1 ]	
KNOW EDGE	Personnel must be clear of vent while blow-					Permit condensate to form in line until line is warm to touch	Location	Sys. operation	[ ST 1 ].	
11175		.u	-	.ul	ad .	ш	.al	ं	[ ST 1 ]	
7541	Open sensing line drain Mor. valve to bilges to re- lieve pressure and clear	Disconnect & remove stm. Mor	[Insert repair & calib.] [	Reinstall & reconnect Mot stm. pressure con- troller	Shut sensing line drain MOE valve	Open scnsing line MOE.	Open supply air valve Mol. to stm. pressure controller	Observe that stm. press. <u>Diag.</u> controller O/P is stable w/stm. pressure at 1275 psi & O/P w as stm. press w below 1275 psi	Shift boiler master A/M sts. to auto. [ST]	Return control to oper.
	7.5	7.6	7.7	7.8	7.9	7.10	1.	7.12	7.13	7.14
	1.3.5 Low Steam Pressure									

		TASK		SKILL	KNOWLEDGE	TRAINING OBJECTIVE COMMENTS	<b>ELL</b> S
	nc)	Check upstream air	r loop				
e449	<b>8</b> . 1	Shift PDB A/M sta. remote manual ST	. to	ST 2	ST 2	ST 2	
	8	Shift control of aff	affected ial	1.3.2.2.4.2	1.3.2.2.4 2	1.3.2.2.4.2	
	8.3	Check air flow rate relay	te relay				
	8.3.I	Observing that of rate relay O/P 19 for from air flow con		Diag. compare air flow That plant must be rate relay 0/P with steady state in ord controller (Gages under relay 0/P = to V relay controller (Gages under relay 0/P = to V rete relay as a sounder relay relations.	That plant must be at Given a displasteady state in order rate relay 0/F to get ar flow rate flow controller relay 0/P. F to 1/P flow rate relation air flow controller in 1 min 100% to eliminate air flow rate relay as a source of trouble	Given a display indicating air flow rate relay $0/P = \text{to } I/P$ from air flow controller determine that air flow rate relay ia operating properly in 100%	
	8.3.2	Observe that air rate relay O/P # I/P from air flow controller	f 104	Diag. compare air flow rate relay O/P with I/P from air flow controller (gages under console)	That plant must be at steady state in order to get air flow rate relay $0/P = to$ I/P from air flow controller to eliminate air flow rate relay as a source of trouble	Given a display indicating air flow rate relay 0,P ≠ to I/P from air flow controller determine from display that ale flow rate relay is source of trouble in 1 min. 100%	
	•	Corrects fault in sir flow rate realy	Per mot	Locat (unde	Location in system (under console)		
	9.1	Shift FO A/M sta. to remote manual [ST 3]	ST 3	-	ST 3 ]		
	9.5	Shift FDB master A/M sta. to remote manual { ST 3 }	i st 3	-	[ ST 3 ] Console is now in two knob man. control location of valves (under console)		

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TRALMING OBJECTIVE COMMENTS				Given a repaired & recalibrated air flow rate relay, reinatall and reconnect in system and delsolate in 5 min. w/o procedural erro				1.3.2.2.7.2.1
KNOWLEDGE	Location of valves (under console)				Location of valves	[ ST 4 ]	[ ST 4 ]	Ir flow 1.3.2.2.7.2.1 th air /P
SKILL			-			Si 4 ]	ST 4 ]	Diag. compare atr flow rate relay 0/P with air flow controller 1/P
TASK	Shut air supply valves Mot to excess air adjuster air flow controller and air flow rate	Disconnect & remove air flow rate relay	9.5 [Insert Repair & calib. ] [	Reinstall 6 reconnect air flow rate relay in system	Open supply air valves Mot to excess air arjuster air flow controller & air flow rate relay	9.7 Shift FO A/M sta. to i	Shift FDB master A/H sta. to auto.i ST 4 ]	Observe that air flow rate relay O/P is now = to 1/P from air flow controller, stack not clear proceeds to 1.3.2.
EVENT	1.3.5 9.3 Low Steam Pressure	4.8	9.5	9.		9.7	8.6	6.

9.10 Return control to operator

mineral months and an experience of the contract of the contra

EVENT		TASK	SKILL	KNOVLEDGE	TRAINING OBJECTIVE COMMENTS	ŒNTS
1.3.5	01	Check air flow controller				
Beauch Date	10.1	Observe that air flow controller 0/P to "0" pai when indicated air flow is above boiler demand. Stack not clear proceed to 1.3.2.2.1.1	Disc-par mot compare air flow controller O/P with indicator air flow	Sys. oper (A/F cont. O/P under console indic A/C on console)	Given an operating console that displays a "O" pri when air flow is above boiler demand determine from display that air flow controller is not the source of trouble I min 100%	
	10.3	Ubserve that air flow controller O/P to "O" psi when indicated air flow is above boiler demand	Diag.		Given an operating console that display a valve other than "O" pei when air flow is above boiler demand, determine is above boiler demand, determine from display that air flow controller is the source of trouble in 1 min. 100%	
	=	Corrects fault in air flow controller	Zez:-mos	Location in system	Given an operating console in which an air flow controllar fault has been placed isolate and remove air flow controller from system in 5 min. w/o procedural error.	
	11.1	Shift boiler master A/M to remote manual [ST 2]	ST 2	ST 2		
	11.2	Shift FOR master A/M to remote manual [ ST 3 ]	ST 3 i	ST 3		
	 :	Shift FO A/M sta. to remote manual [ST ]	[ ST 3 ]	[ ST 3 ] Conacle is now in two knob control		
	7.11	Shut supply air to excess air adjuster 6	TOX	Location of valves (under console)		

Rec-may we compensate Sys. oper. "O" psi on bother ing relay while ob-master A/M insulates air serving O/P indication signal to air flow controller

Set Soiler master A/M at "O" psi

11.5

EVENT		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	1.3 PAS 70 COMMENTS
1.3.5 Low Steam	11.6	Disconnect & remove air flow MoL use hand tools to Location (under console) controller	W Mos use hand tools to disconnect & remove	Location (under console)		
Presure	11.7	[ Insert cal. & repair]				
	11.8	Reinstall & reconnect air flow controller	<b>10</b>		Given a repaired & recalibrated air flow controller, reinstall reconnect in system & deisolate in 5 mln. W/O procedural error	
	11.9	Oper, supply air to air flow controller & excess air adjuster				NAVI
	11.10	Shift FO A/M sta. to auto. [ST 4]	[ 7 LS ]	[ ST 4 ]		<b>Frae</b> qu
	11.11	Shift FDB master A/H to auto. [ ST 4 ]	ST 4 3	[ ST 4 ]		IPCEN ;
	11.12	Shift boller master A/H to auto. [SI 1]	( ST 1 )	[ ST 1 ]		74-C-0)
	11:13	Observe that air flow controller 0/P now to "0" pai when indicated air flow is above boller demand stack not clear proceed to 1.3.2.2.1.1	1.3.2.2.9.!	Sys. oper.	1.3.2.2.9.1	151-1
	11.14	Raturn control to operator				

EVENT		TASK	SKILL	KNONLEDGE	TRAINING OBJECTIVE COMMENTS	MENTS
1.3.5	12	Check FD% A/M stations				
Low Steam Pressure	13	Corrects fault in FDB A/M stations				
	13.1	Shift FDB A/M stations to remove manual[ST 3]	[ ST 3 ]	[ ST 3 ]	[ ST 3 ]	
	13.2	Shift control of blower associated with faulty FDB A/M station to local manual	Per mot	Location of local man. control of blower	Given an operating blower control, shift control from remote manual to local manual in 3 min. W/O procedural error	
	13.3	Shut aur supply to faulty FDB A/N sta.		(Valve under console)	Given an operating console with indications of faulty A/M station, isolate & remove the compensating relay in 5 min. with no procedural errors	œ
	13.4	Disconnect & remove compensating relay	Moruse hand tools to disconnect & remove comp. relay	Location of comp. relay in A/M sta. under con- sole	Location of comp. relay Given an operating console with indications of in A/M sta. under con-faulty A/M stationm isolate & remove the sole compensating relay in 5 min. wi'n no procedural errors	s of dural
	13.5	[Insert Rep. & calib.]		_	1	
	13.6	Reinstall & reconnect comp. relay	Mot use hand tools to refustall & reconn.	Location	Given a repaired & recalibilited compensating relay, reinstall & reconnect in A/M station & deisolate in 5 min, W/O procedural error	80
	13.6	Shift control of affected blower to remote manual			Given an operating blower counted, shift control from local manual to remote manual in 3 min. w/o procedural error	
	13.7	Shift FDB A/M sta. to auto [ST 1]	[ ST 1 ]	[ ST 1 ]	[ ST 1 ]	
		Stack not clear proceed to 1.3.2.2.5				
	13.8	Return control to op- erator				

EVENT		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMOC
1.3.5 Low Steam	14	Check down stream air loop				
Pressure	14.1	Vary FDBA/MSTA O/P and observe that blowers respond throughout range	Per mot - vary A/M sta. O/P while ob- serving blower tachs. (Tachs on console)	Smooth response of flowers indicate down stream air loop functioning properly and not source of trouble	Given a display indicating blower response, determines that fault is not in down stream air loof in l min.	
	14.2	Vary FDB A/M sta. output and observe that blowers do no. respond smoothly throughout range	Per mot vary A/M sta. output while observ- ing blower tachs.	Eratic reaponae of blowers indicates trouble is located in downatream air loop (range mod-under conaole)	Eratic reaponae of Given a display indicating blowers indicates eratic blower response detertrouble is located in mines that fault is located in downatream air loop downstream air loop in 1 min. (range mod-under	
	1.5	Check range modifier				
	15.1	Check that range modifier O/P corresponds to FDB A/M sta. O/P according to calib. table data proceed to 1.3.2.2.6	Per test ret. compare Location of indica- 0/P's from range mod- tions location of ifier & FDB A/M sta. calib. data (gages with data taken from under console) calib. table (data in tech. man- ual)	Location of indications location of calib. data (gages under conaole) (data in tech. manual)	civen a display indicating range modifier 0/P and FDB A/M sta. 0/P correspond and a calib. table, determine by comparison that range modifier is not the source of trouble and that FDB governor & .mission valve is the only unit left in down stream loop	
	15.2	Check that range modifier O/P does not correspond to FEB A/M O/P according to calib, dara table	Per cest ret. compare Location of indica- O/P's from range mod- tions location of ifier & FDB A/M sta. Calib. data (gagea with data taken from under console) (dat. calib. table in tech. manual)	Location of indications location of caitb. data (gagea under console) (data in tech. manual)	Given a display indicating range modifier 0/P and FDB A/M sta. G/P do not correspond, and a calib-table. Determine by compariosn that range modifier is source of trouble in I min.	
	16	Correct fault in range modifier				

Mot-use hand tools to Location (under console) disconnect & remove	
Mot Mot	modifier disconnect & rem [Insert Rep & calib.] [ Reinstall & reconnect Mor-use hanu toc range modifier  Open supply air to range Mor modifier  Shift control of affected Per mor FDB from local manual ro
Per mot	
	Open supply air to range modifier Shift control of affected FDB from local manual ro

EVENT		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
1.3.5 Low Steam Pressure	16.12	Observe that range modifier 0/P now corresponds to FDB A/M sta. 0/P Iaw calib. dat table stack not clear proceed to 1.3.2.2.6	Zer test ret. compare range mod. 6 A/M sta. O/P with data table	Location-indicates location data table use of data table	Given a display indicating range modifier O/P and FDB A/M sta. O/P corresponds Isw calib. table determine by comparison that range modifier fault has been correct within 3 min. to 100% accuracy	
	16.13	Return control to oper.				
	17	Check FD blower governor and emission valve	Į.			
	17.1	Shift affected FDB A/M sta. to remote manual [ ST 2 ]	Per mot [ST 2]	[ ST 2 ]		
	17.2	Secure affected FDB				This step in the proc is sccomplished by wa stander
	17.3	Shut supply air to affected range mod- ifier		(Under conscle at FDB)	08)	
	17.4	Shut root stm. 6 ex- haust valves to FDB				
	17.5	[Insert calib. & repair ]		<b>-</b>	] [	_
	17.6	Open supply air to range modifier				
	17.7	Open root stm. & exhaust valves to FDB				
	17.8	Start FDB (FPB A/M sta. to remote man.)				
	17.8	[Irsert final calib.]		1	] [	

		NAVTRA	EQUIPO	EN 74-C-01	51-	1	L.				
L. 3 FAS 75	TRAINING OBJECTIVE COMMENTS	Watch stander starte PDB					Given an operating console This T/O is eplit because into which an eir flwo xmtr. In some cease the eir flow fault has been placed isolete xmtr. may be repaired in faulty component within 3 minsplace using a portable test with no procedural errors. Unit. The insert will make provieton for both portable and fixed test units.		Given an operating console in which air flow xmer. fault has been isolated, remove eir flow xmer. from system in 5 mins. With no procedural error		Given e repaired end recalibrated air flow xmrr. reinstall end re- connect in system in 5 min. with no procedural errore
	TR								3		0402
	KNOWL EDGE		ST 1 ]	ST 4 ]			(A.F xmtr. in space)	Location (at xmtr. space)	Location of air flow wmtr. under console		
	SKILL K		ST 1 ] [	ST 4 ]				Mor	Mot-use hand tools to disconnect and remove		Mor-use hand tools to reinstall and reconnect
	TASK	Observe that FDB now responds smoothly to varying FDB A/M sta. O/P	Shift FDB A/M sta. to [auto	Shift FOB master A/M [sta. to auto. stack not clear proceed to 1.3.2.2.7 [ST 4]	Return control to oper.	Check air flow xmtr.	Corrects fault in air flow xmtr.	Shut air supply and sensing lines to air flow transmitter	Disconnect and remove A air flow xmtr.	[Insert cal, & repair]	keinstall and reconnect B air flow xmtr.
		17.9	17.19	17.11	17.12	 00	18.1	18.1.1	18.1.2	18.1.3	18.1.4
	EVENT	1.3.5 Low Steam Pressure					83				

COMPLEMENTS										
TRAINING OBJECTIVE			Given an operating console with air flow xmtr. fault removed determine from console front indications, periscope and amoke density meter that system now has ability to steam with clear stack in 3 min.		Location of sir Given an operating console in flow xmtr. tault console has been isolated, remove air flow xmtr. from system in 5 mins with no procedural errora.	Given an operfilm console into which an excess air adj. fault has been placed. Isolate and remove faulty component in 10 mins. with no procedural errors.				Given a repaired and recalibrated excess air adjuster reinstall in system in 10 min. with no procedural errors
KNOWLEDGE	Location		[ SI 4 ] Console is now in one knob re- mote wan. control		Location of sir flow xmtr. under console	(Excess air adjuster under conscle)	Location (A/F xmtr- spac3 exc. air adj.	under Console/ Location of excess air adjuster under commole		
SKILL	Mot	Per not	[ ST 4 ]		Mor-use hand tools to disconnect and remove		Loc	excess Mot-use hand Loc tools to dis-adj connect and re-move		
TASK	open air supply and sensing lines to sir flow xmtr.	<pre>parallel boiler master A/M sta. indicators</pre>	7 Shift FO A/M to auto. [ ST 4 ]	Check excess air ad- juster	Disconnect and remove air flow xmtr.	Corrects fault in excess air adjust.	Shut air supply to air flow xmtr. and excess air adj.	Disconnect and remove excessair adjuster	Insert calibration and repair	Reinstalls and reconnects excess air adjuster
	18.1.5	18.1.6	18.1.7	19	19.1	20	20.1	20.2	20.3	20.4
EVENT	1.3.5 Low Steam Pressure									

IVE COI	ole from er fault wine from console unit is				remote master	console ister runine from itions, density meter ability to steam 3 min.				
TRAINING OBJECTIVE	Givan an operating console from which excess air adjuster fault has been removed, determine from console front indications that unit is operating sat.			4 7 75 1	Console is now one kind remote man. control on boiler master A/M sts.	Given the operating console with excess air adjuster fault corrected determine from console front indications, periscope and smoke density meter that system now has ability to studith clear stack in 3 min.				
KNOWLEDGE	Sys. Operation	Sys. oper. excess air adjuster output should now be to air flow xmtr. output		[ ST 4 ]	[ ST 4 ]	Sys. operation	[ ST 1 ]		e Appearance of e periscope when stack is smoking	
SKILL	console indication: as unit is put back in service to deter- ane if corrections			[ ST 4 ]	ST 4 1	<pre>LerMEM - observe console parameters and periscope/ smoke density meter for sat. operation</pre>	[ sr 1 j		Per-observe periscope Appearance of and verify with smoke periscope when density meter stack is smok	
TASK	Evaluate results of cc.rective actions	Open supply air to air flow xmtr. and excess air adjuster	Parallel indicators on boiler master A/M stat.	Shift FO A/M sta. to auto <sub>[</sub> ST 4 ]	Shift FDB A/M sta. to auto .ST 4 ]	Observe system response in that stack is clear while manipulating system in one knob control	21.4.1 Shift boiler master A/M sta/ to auto [ST 1]	21.4.2 Return control of console to operator	Observe that periscope is not clear	Check low signal selector
	21	21.1	21.2		21.3	21.4	21.4.	21.4.3	21.5	22
EVENT	1.3.5 Low Steam Pressure		·							

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COMPGENTS

TRAINING OBJECTIVE

KNOWLEDGE

SKILL

TASK

EVENT

Per-mot turn comp. Location of controls relay knob on boiler low signal selector master sta. in decrease input signals are now directions while isolated

23.1.5 Decrease boller master output signal to zero

System operation  When FO demand signal is display AFO demand signal > at flow signal trouble the air flow signal determine and component indicated upstream oil loop that the trouble is located in the and component indicated upstream oil loop and that the is low signal selector  (low sig. selector-under component in one minute to 100% accuracy console)						
gnal 1s il trouble ii loop icated ector ir-under			[ ST 2 ]	[ST 3] console 1s now in two knob remote manual control	Location of system isolation valves (under console)	[ ST 2 ]
signal Diag observe FO de- System operation  mand and air flow sig- when FO demand signals to determine if > air flow signs a signal stream or down stream and component ind of FA A/M sta.  (FO A/M on console) (low sig. selectic console)		į.	[ ST 3 ]	[ ST 3 ]	MOT	[ ST 2 ]
22.1 Determine that FO signal 1s > air flow signal	23 Correct fault in how signal selector	23.1 Remove Tow signal selector from system	23.1.1 Shift FO A/M sta to manual [ ST 3 ]	23.1.2 Shift FDB Master A/M sta. to manual	23.1.3 Shut suppy air to excess air adjuster	23.14 Shift boiler master A/M sta. to man. { ST 2
1.3.5 Low Steam Pressure						

COMMENTS							
TRAINING OBJECTIVE	Given a repair and recalibrated low signal selector reinstall in system within 10 min.	Given an operative console from which low signal selector fault has been removed determine from console front indications that unit is operating satisfactori'y		L.			
KNOWLEDGE		Sys. operation	Sys. operation auto indicator on FO A/M station should remain at zero	Sys. oper-auto indication on FO A/M sta. should track with boiler master indication then stop. Even though boiler master indication continues to increase		[ ST 4 ]	IST 4j console 18 now in one knob remote man control on boller master A/M station
SKILL		<u>liag.</u> - observe console indic. as unit is put back in service to determine if corrective actions are successful	мот/ием_	Per-mot/MEM	<u>Per-mot</u>	ST 4 j	[ ST 4 ]
TASK	23.1.7 Insert calib. & repair 23.1.8 keinstall and reconnect low signal selector in system	23.2 Evaluate results of corrective actions	23.2.i Open air supply to excess air adjuster	23,2.2 Increase manual output signal on boiler master A/M station to a point above air flow indication	23.2.3 Parallel boiler master indicators	23.2.4 Shift FO A/M sta. to auto [SI 4]	23.2.5 Shift FDB master to A/M sta. to auto. [ST 4]
EVENT	1.3.5 Low Steam Pressure						

COMMENTS	- I				
TRAINING OBJECTIVE	Given a displey indicating correct characterizing relay input & output utilizee tech. manual information to compare input with output determine acceptibility of indications within 5 min. 100% eccurate	Given a display indicating incorrect that relay output, utilizes tech. manual information to determine indicatione are not acceptable and that chair relay is the trouble source setting is the frouble source.		Given an operating PO flow control valve and indication of normal system FO pressure assume control of FO preseure in local min. in 3 min. with no procedural errore.	Given an operating concole into which a chair relay fault hae been placed isolate & remove chair relay anno with no
EDCE.	Location data table: that trouble is located in char relay (char relay mounted unde: console)	Location data table: that trouble is located in char relay (char relay mounted	(aroano		
KNOWLEDGE	Location dai table: tha ton trouble is located in char relay (char relay anounted und	Locati table: table: locate locate relay		Location of PO flow cont. valve hand jack and local PO press. gage to (valve in space gage on gage board in space)	Location (under console)
SKILL	Diag. text ret-ex- Location de tracts inputs vs. table: the output data from calibration trouble is data table and compare located in input-output for accept- char reliaility mounted und console)	Diag. LEXL-ret ex- tracts input vs. cutput data from calibration trouble is data table and compares input-output for accept- relay Gonat ibility		Cer mot use hand jack Loc on FO flow cont. valve flo han to take control and han observe FO press. gage loc to determine when control gag in local manual is effected in an local manual is effected in fin	Loc
TASK	Check characterizing relay Observe characterizing relay output to correspond with input with calibration data table proceed to 1.3.1.3.10	Observe characterizing relay output does not correspond to input as per data table	Correct fault in char relay Correct fault in char.	Shift control of FO flow Rer menor on FO manual using hand jack to te to the following	Shut air supply valve <u>Mot</u> to char relay
	24.1	24.2	25	25.2 Sh	25.3 SP
EVENT	1.3.5 Low Steam Pressure				

EVENT		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
1.3.) Low Steam Pressure	25	Disconnect & remove char relay	Mor use hand tools to disconnect & remove	Charion of char relay under console		
	25.5	[Insert cal. & repuir]	1 1	J	- <b>c</b>	
	25.6	Reinstall & reconnect char relay			Given an operating console and a repaired & recalibrated char relay reinstall & reconnect in system in 5 min. with no procedural errors	
	25.7	Open supply air valve to char relay	Mot	Location	Given a reinatalled & reconnected char relay deisolate and return to service in 3 min.	
	26	Check FO control valve	ě			
	26.1	Observe that FO pressure varies smoothly as FO A/M station output is varied stack not clear proceed to 1.3.1.3.10.2.3.2	Per mot vary FO A/M sta. output while observing FO press. gage for acceptibility		Location FO press. Given an operating console with gage that smooth indication of FO pressure moving movement of FO amoothly and response to FO A/M press. gage in—sta. output determines that FO dicated FO flow control flow control valve is not the valve operating source of trouble properly (gage on console)	
	26.2	Observe that FO pressure does not vary smoothly as FO A/M sta. output is varied	Per mot vary FO A/M sta. output hile observing FO press. gage for acceptibility	Location FO press.  gage that eratic movement of FO press. gage in- dicates FO flow control valve not operating properly	Given an operating console with indications of eratic FO press in response to varying FO A/M ata. output determines that trouble is located in FO flow control valve	
	27	Correct fault in FO control valve				
	27.1	Shift control of FO flow cont. valve to local manual			1.3.1.3.9.2.1	
	27.2	Crack open FO flow control valve by-		(By-pass located near F/O control valve-in space)		

CUMPLENTS

EVENT		TASK	SKILL	KNOWLEDGE	TRAINI	TRAINING OBJECTIVE
1.3.5 Low Steam Pressure	27.3	Shut FO inlet valve to FU flow cont. valve while opening by pass to assume control of FO press. on by pa	Mot-close one valve while opening another to maintain a smooth transition of control	(Isolation valves located near F/O control valve inspace)	Given an operating system shift control of PO press to the by-pass and isolatiflow control valve	Given an operating system shift control of PO pressure to the by-pass and isolate FO flow control valve
	27.4	Shut FO outlet valve				
	27.5	Disconnect & remoser FO flow control valve	Mot use hand tools to disconnect & remove			
	27.6	[ Insert repair ]	[ ]	J	] [	-
	27.7	Reinstall & reconnect FO flow control valve	Hot			
	27.8	Open FO flow cont. valve outlet valve	, e			
	27.9	Crack open inlet valve				
	27.10	Shut by-pass valve while opening inlet valve to assume control of FO press. on FO flow control valve in local man.	1.3.1.3.10.2.3			
	27.11	Shift control of FO flow control valve to remote man.	Mot use hand jack to assume control in remote manual			
	27.12	[Insert cal. for min. oil press. ]	[ ]		] [	-
Steam Steam	27.13	Shift FO A/M sta. to auto[ST 1] and observe stacks clear	[ ST 1 ]	[ ST 1	) (	ST i

End of Low Steam Pressure Event

COMMISSION								
TRAINING OBJECTIVE		1.3.3.1.1				Given a display indicating BLR A/M O/P \( \psi \) to 0 % as steam press. \( \psi \) above 1275 psi determine that fault is downstresm of demand loop in 1 min. \( \psi \) 100% accuracy	Given a display indicating BLR A/M O/PM to 0% as stesm press. A above 1275 psi determine that fault is in demand loop in 1 min. w/100% accuracy	Given a display indicating BLR A/M O/P tracks I/P, determine that A/M station is not source of trouble 6 that problem is located in demand loop upstream of BLR A/M station, in 30 sec. w/loo% securacy
KNOWLEDGE			[ ST 1/ST 4 ]	BLR steam press. should be 1275 ps1	Sys. operation	System operation boller A/M O/P should resch 0% as steam press. reaches 1285 ps1	1.3.6.2.1 System operation boiler A/M O/P should reach 0% as steam press. reaches 1285 psi	Sys. Oper.
SKILL			[ ST1/ST 4 ]	Per	Diag, per mot	Diag. Per mot	Diag. per mot.	Diag.
TASK	Take control of console from operator	Reproduce event	Shift BLR master A/M, FDB A/M's, & FO A/M to auto.	ObserveBLR sterm press. not at desired value	Observe demand loop	Observe BLR A/M O/P V to 0 % As steam press.A above 1275 psi proceed to 1.3.6.3	Cbserve BLR A/M O/P to 0% as steam press. above 1275 psi	Observe that BLR A/M O/P tracks I/P proceed to 1.3.6.2.3
	-	1.1	1.1.1	1.1.2	~1	2.1	2.2	2.2.1
EVENT	1.3.6 High Steam	y integral						

COMMENTS										
TRAINING OBJECTIVE	Given a display indicating BLR A/H O/P does not track I/P, determine that A/M station is source of trouble				ST > 1	[ ST 4 ]			Given an operating console indicating a decreasing stm. press. determines from display that boiler master U/P to 100% as stm. press \$\psi\$ below 1275 psi indicating that deman, loop is not the source of trouble 30 sec. 100%	Given an operating console indicating a decreasing stm press. determine from the display that boiler master 0/P \$\frac{x}{2}\$ to 100% as stm. press_below 1275 ps! indicates that trouble is located in demand loop in 30 sec. 100%
KNOWLEDGE	Sys. oper.				[ 5T 4 ]	[ ST 4 ] [ ST 1 ]			Sys. oper. that boller master A/M should reach 100% as stm. press to 1265 psi (stm. press gage on conaole)	Sys. oper. that boiler master A/M should reach 100% as stm. press. \$\psi\$ (of 1265 psi (stm. press. gage on console)
TASK SKILL	2.2.2 Cbserve that BLR A/M U/P Diag. does not track I/P	2.2.2.1 Corrects fault in RA/M station	High steam press. not corrected proceed to 1.3.6.2.3	2.2.2.1.1 Reproduces event	2.2.2.1.1.1Shift FO A/M to auto Per mot.	2.2.2.1.1.23hift FDB maater A/M Per mot to autolsT 4] 2.2.2.1.1.35hift boller master Per mot A/M to auto   ST 1	2.2.2.1.1.40bserve Vstm. press. Per.	2.2.2.1.2 Make observations on console	2.2.2.1.2.10bserve boiler maater <u>Diag.</u> A/M O/P f W/zero bias to 100% as stm. press + below 1275 psi	2.2.2.1.2.20bserve botler master <u>Diag.</u> A/M O/P Å to 100% as stm. press below 1275 psi
EVENT	1.3.6 High Steam Pressure									

COMMENTS	рца							
TRAINING OBJECTIVE	Given a display indicating boiler master A/M O/P f= I/P f determines that A/M station is not source of trouble and that problem is located in upstream demand loop in 30 sec. 100%	Given a display indicating boller master A/M O/P ≠ I/P determines that boller master A/M station is source of trouble in 30 sec. 100%	Given a boiler master A/M sts. in which a fault has been plsced isolate, disconnect 6 remove the comp. relay in 5 min. w/o error	[ ST 1 ]	Given a display indicating a properly operating inverting relay is not cause of trouble & problem is upstream of inv. relay in 1 min.	Sys. oper., Civen a display indicating location of gages, a fauly inverting relay under console determine that inv. relay is cause of trouble in 1 min.		Given a display indicating inverting relay 0/P ≠ 60 ps1 - 0/P of high signal selector determines that inverting relay is not
KNOWLEDGE	Sys. oper.	Sys. oper.		[ ST 1 ]	Sys. oper. location of gages under console	Sys. oper., location of gages under console		[ ST 1 ]
SKILL	Diag.	Diag.		[ ST 1 ]	<u>Diag.</u>	Diag.		sr 1 }
TASK	2.2.2.1,2.2.1Observe that boiler master A/M O/P tracks I/P proceed to 1.3.5.4	2.2.2.1.2.2.20bserve boiler master A/M O/P does not traci. I/P	l.3 Correct fault in boiler master A/M station	2.2.2.1.3.1 Shift boiler master A/M to manual [ST 1]	Observe that inverting relay $0/P\sqrt[4]{t}$ to 0 psi as high signal selector $0/P\sqrt[4]{t}$ to 60 psi proceed to $1.3.6.2.5$	Observe that inverting realy $0/r4$ to 0 psi as high signal selector $0/r4$ to 60 psi	Correct fault in inverting relay	Shift boiler A/A to remote manual [ST 1]
EVENT	1.3.6 2.2.2 High Steam Pressure	2.2.2.1.	2.2.2.1.3	2.2.2.1	2.3	2.4	2.4.1	2.4.1.1

1.3 FAS 86	COMMENTS						
	TRAINING OBJECTIVE	source or trouble & that problem is lated upstream of inverting relay in 1 min.				1	Given a repaired & recalib. inverting relay, reinstall, re- connect in system & delsolate
	TRAININ	source or troproblem is of inverting 100%				L	Given a repair inverting re-
	_			collers)	relay	=	
	KNOWLEDGE		Location of valve (under console)	Location of valves (in space at controllers)	Mot-use wand too's Location of invert. relay to discunnect & re- under console move	j	
	SKILL				and too's nect & re-		
			Mot	Mot	Mot-use at to discon	Mar	ją.
	TASK		Shut suppy cir valve to inverting relay	Shut supply air valve to "A" & "B" steam pressure controllers	2.4.1.4 Disconnect & remove to inverting relay	2.4.1.5 [ Insert repair 6 callb. ]	2.4.1.6 Reinstall & reconnect Mor inverting relay
			2.4.1.2	2.4.1.3	2.4.1.4	2.4.1.5	2.4.1.6
	EVENT		1.3.6 High Steam Pressure				

ST 1 ST 1 ST 1 2.4.1.10 Shift boiler master A/M [to auto. [ST 1] 2.4.1.11 Return control to oper. 2.4.1.9 Observe that invert-ing relay O/P now = 60 psi -O/P of high signal selector

[ 1.3.5.4.1 ]

Location

2.4.1.7 Open supply air valve Mot to inverting relay

2.4.1.8 Open supply air valve Mor to "A" & "B" sim. press. controllers

Location

EVENT		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTICE	CUMMENTS
1.3.6 Figh Steam Pressure	2.5	Observe that high signal selector O/P = highest O/P from steam press. controllers	Dieg.	Sys. uper. locat. of gagen	Sys. uper. locat. Given a display indicating of gagen a properly operating high signal selector, determine that fault is not in high signal selector in I min. w/100% accuracy	
	2.6	Observe that high signal selector O/P # highest O/P from steam press. controller	Dieg.	Sys. oper.	Given a display indicating a faulty high-signal selector determine fault in 1 min. w/100% acc racy	
	2.6.1	Correct fault in high signal selector				
	2.6.1.1	Shift boiler master A/M stations to wanual	[ ST 2 ]	[ ST 2 ]	[ ST 2 ]	Operator do
	2.6.1.2	Shut supply air in both steam prescure controllers	Mot	Location-in space	Given a high-signal selector into which a fault has been placed, isolate, disconnect, 6 remove in 5 min. w/o procedural error	
	2.6.1.3	2.6.1.3 Disconnect & remove high-signal selector	MoL-using hand tools Location to disconnect & remove console	Location under console		
	2.6.1.4	Insert repair 6 calib	į	[ ]	[ ]	
	2.6.1.5	Install & reconnect high-signal selector	Mor-use of hand tools Location	Location	Given a high-signal selector into which a fault has been repaired, install, reconnect, 6 deisolate in 5 min. w/o procedural error	
	2.6.1.6	Open aupply air to steam pressure control- lers	হতা	Location		
	2.6.1.7	2.6.1.7 Shift boiler master A/M stations to auto.	[ ST 1 ]	[ ST 1 ]	[ ST 1 ]	Operator do

COMPLENTS								
TRAINING OBJECTIVE	Given a dieplay indiceting a faulty steam pressure controller, determine faulty component in 1 min. w,100% accuracy				Given a steam pressure controller in which a feult hes been placed, isolate, blow down disconnect & remove from system, in 5 min. w/o error			
KNOMLEDGE	System operation applies only to E/P cont. on bollers in operation				[ ST 2 ]	Location of valve (at controller)	Location	Location
SKILL	Diag. per mot				5 2 2]	Mot	Mot	
TASK Return control to operating personnel Fault not corrected proceed to 1.3.6.2.7	Observe that O/P of steam pressure con- troller does not f to 60 ps1 as steam press. f above 1275 ps1	Correct fault in steam pressure controller	Fault not corrected proceed to 1.3.6.3	Correct fault in stm. press. controller	2.7.1.1 Shift boiler master A/M to remote manual [ST 2]	Shut supply air vaive E to affected stm. press. controller	Shut steam press. Sensing to steam press. controller	Shut steam press. sensing line isolation valve at stm. press controller
2.6.1.8	2.7	2.7.1		2.7.1.1 C	2.7.1.1 S	2.7.1.2 \$	2.7.1.3 S	2.7.1.4 S
EVZNT 1.3.6 High Steam Pressure				96				

COMMENTS									
TRAINING OBJECTIVE				Given a repaired & realib. stm. pressure controller reinstsll	e e			Given a display in which FO A/M O/P we oo % ss B/R master A/M O/P we ogg determine that low signal selector is not cause of trouble & fault is located downstream of FO A/M station in 1 min w/100% sccuracy	Given s diaplay indicating a faulty lo-sig. selector determine faulty component in 1 min w/100% accuracy
KNOWLEDGE	Personnel must be clear of vent while blowing down				Permit condensate to form in line until line is warm to touch	Location	Sys. oper.	Sys. oper.	Sys. oper.
SKILL		XOL	1 1	HOT HOT	Moc	Moc	Diag. per mot	P Diag, per mot	P Diag. per mot.
TASK	Open sensing line drain valve	Disconnect & remove stm. pressure cont.	2.7.1.7 [Insert repair & calib.] [	Reinstall & reconnect MOI stm. pressure controller Shut sensing line drain MOE valve	2.7.1.10 Open Sensing Line	Open supply air valve to steam pressure controller	Observe feel loop	Observe tha: FO A/M O/P <u>Diag, per mot</u> \$\foraller \text{ to 0X as boller A/M} \\ \text{O/P} \text{ to 0Z proceed to} \\ \frac{1.3.6.3.3}{\text{1.3.6.3.3}}	Observe that FO A/M O/F <u>Diag. per mot</u> ‡ to 0% as B/R master A/M O/F↓ to 0%
	2.7.1.5	2.7.1.6	2.7.1.7	2.7.1.8	2.7.1.10	2.7.1.11	3	3.1	3.2
EVENT	1.3.6 High Steam Pressure								

COMMENTS				NAVTRA	egu (PCEN 7)	4C01	51-1		In all procedures where hand tools are required tools list will be included with cal. 6 repair insert
TRAINING OBJECTIVE						ation			In ha
KNOWLEDGE				[ ST 3 ]	[ ST ? ] Console is now in two knob remote manual control	Location of system isolation valves (under console)	[ ST 2 ]	Location of control low controls low signal selector input signals are now isolated v-	90
SKILL	lo-sig.	3.3 3.3	l selector	to manual [ ST 3 ]	A/H sta. [ ST 3 ]	o excess MOL	[ ST 2 ]	er In bser on	tor MoL use hand tools to disconnect and remove
TASK	3.2.1 Correct fault in lo-sig.	Fault not corrected proceed to 1.3.6.3.3	3.2.1.1 Remove low signal selector from system	3.2.1.1.1 Shift FO A/M sta. to manual [ ST 3 ]	3.2.1.1.2 Shift FDB Master A/M sta. to manual [ST 3]	3.2.1.1.3 Shut supply air to excess air adjuster	3.2.1.1.4 Shift boiler master A/M sta. to man. [ ST 2 ]	3.2.1.1.5 Decrease boiler master Per-mof. turn output signal to zero comp. relay knob on boil naster sta.: decrease diriting sage. (be master sta.: console)	3.2.1.1.6 Disconnect & remove low signal sclector
EVENT	1.3.6 High Steam Pressure		3.2	3.2	. 3.2	3.2	3.2		3.2

COMMENTS								
TRAINING OBJECTIVE		Given a repair and recalibrated low signal selector reinstal! in system within 10 min.	Location of Given a diapiay in which charact. relay charact. relay O/P to min. calib. data determine that charact. relay is not cause of trouble 6 fault is in PO control valve	1.3.6.3.3 Given a display indicating Location of charact.faulty charact. relay deterrelay calib. data mine faulty component in 1 min w/100% accuracy	3.9 thru 1.3.1.3.9 thru 1.3.1.3.9.2.9 1.3.1.3.9.2.8		Given a display indicating correct characterizing relay input 6 output utilizes tech, manual information to compare input with output to determine acceptibility of indications within 5 min. 100% accurate	Given a displsy indicating incorrect chair relay output, utilizes tech. manual information to determine indications are not acceptable and that chair relay is the trouble source within 5 min. 100% accuracy
KNOWLEDGE				3.3.6.3.3 Location of chara relay calib. data	1.3.1.3		Location of data table in navy ships tech, manual: that trouble is located downstream of chair relay (FO A/M on console & relay 0/P chair under console	tracts input vs. that trouble is output data from located in chair calibration data relay (chair relay table and commonted under conput for accept—sole)
SKILL			. <u>Diag. jer mor</u> text n.	1.3.6.3.3 Diag. per mot	1.3.1.3.9 .hru 1.3.1.3.9.2.8		biag, text ret-ex- tracts input vs. output data from calibration data table and com- pares input-out- put for accept- ibility	tracts input vs. cutput data from calibration data table and com- put for accept- ibility
TASK	3.2.1.1.7 [Insert calib. 6 repair ]	Reinstall and re- connect low signal selector in system	Observe that character. Diag. Jer mot text ret. izing relay 0/P \( \psi \) comin. as FO A/M 0/P \( \psi \) to 0\( \psi \) proceed to \( \frac{1.3.6.3.5}{1.3.6.3.5} \)	Observe that charict. relay O/P \$to min. as FO A/M O/P \$to 0%	Correct fault in churacterizing relay	Fault not corrected proceed to 1.3.6.3.5	Observe characterizing relay output to correspond with input with calibration data table proceed to 1.3.1.3.10	Observe characterizing relay output does not correspond to input as per data table
	3.2.1.1.7	3.2.1.1.8	e. c	3.4	3.4.1		3.4.1.1	3.4.1. 2
EVENT	1.3.6 High Steam	rressure						

					1.3 FAS
	TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
3.4.1.2.	3.4.1.2.1 Correct fault in char. reley	ar.			
3.4.1.2.2	Shift control of PO flow control valve to local manual using hand jeck	Per mot use hand o jack on FD flow and control valve to take control and observe FO press. gage to determine when control in local manual is effected	Location of FO flow cont. valve hand jack and local FO press. sage to (valve in space gage on gage board in space)	Given an operating FO flow control valve and indicetion of normal system FO pressure assume control of FO pressure in local min. in 3 min. with no procedural errors.	
3.4.1.2.	3.4.1.2.3 Shut air supply valve to chair relay	e Mot	Location (under console)	Given an oeprating console into which a chair relay fault has been placed isolate & remove chair relay in 5 min, with no procedurel errors	
3.4.1.2.4	3.4.1.2.4 Disconnect & remove chair relay	Mot use hand tools to disconnect & re- move	Motuss hand tools Location of chair to disconnect & re-relay under console move		
3.4.1.2.5	3.4.1.2.5 [ Insert cal. 6 repair		-		
3.4.1.2.6	3.4.1.2.6 Reinstall & reconnect chair relay			Given an operating console and a repaired & recalibrated chair relay reinstell & reconnect in system in 5 min. With no procedural errors	
3.4.1.2.7	3.4.1.2.7 Open supply air valve to chair relay	Hot	Location	Given a reinstalled & reconnected chair relay delsolate and return to service in 3 min.	
3.4.1.2.8	3.4.1.2.8 Shift correct of FO flow control valve to remote manual	Jack on FO flow control valve to return control to return control to remote manual	Location FO flow cont. val. & local TO press. gage.	Location FO flow cont. Given an operating FO flow val. & local FO press. control valve and indications of gage.  remote manual FO system press effect remote manual control in 3 min.	

		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
E			observe FO press gage to determine when remote manual control is effected	9 80 T		
	3.5	Observe that FO press. ♦ to min. as FO A/M O/P♥ to O %	· Diak. per mot	Sys. oper. min of pressure	Given a display indicating a faulty PO control valve determine faulty component in 1 min. w/100% accuracy	
	3.5.1	Shift control of FO flow cont. valve to coal manual			1.3.1.3.9.2.1	
	3.5.2	Crack open FO flow control valve by-		(Ay-pass located near FO control valve-in space)		
	3.5.3	Shut FO inlet valve to FO flow cont. valve while opening by-pass to assume control of FO press. on by-pass	MOL-close one valve (Isolation valves while opening another located near F/N to maintain a smooth control valve intransition of control	(Isolation valves r located near F/O control valve in-space)	Given an operating system shift control of FO pressure to the by-pass and isolate FO flow control valve	
	3.5.4	Shut FO outlet vslve				
	3.5.5	Disconnect & remove FO flow control val.	<pre>&amp; remove Mot use hand tools trol val. to disconnect &amp; re- move</pre>			
	3.5.6	[Insert repair ]	[ ]	[ ]	[ ]	
	3.5.7	Reinstall & reconnect <u>Mot</u> FO flow control valve	Mot			
	3.5.8	Open FO flow cont.				
	3.5.9	Crack open inlet val.				

COMPLENTS					
TRAINING OBJECTIVE				[ sr1 ]	
KNOWLZDGE				[ ST 1 ]	
SKILL	1.3.1.3.10.2.3	Mot use hand jack to assume control in remote man		[ ST 1 ]	
TASK	Shut by-pass valve while opening inlet valve to assume control of PO pressure on PO flow control valve in local manual	Shift control of FO flow control valve to remote man.	Insert cal. for min. of press.	Shift FO A/M sta. to [auto [ST 1] and observe stacks clear	Return control to operator
	3.5.10	3.5.11	3.5.12	3.5.13	3.5.14
EVENT	1.3.6 High Steam Pressure				End of high steam pressure

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End of high steam pressure event

1.3 FAS 9 COMMENTS									This step done by watch stander
TRAINING OBJECTIVE		[ 1.3.3.1.1]	[ ST 1 ]	• 95	Given a display that indicates main feed pump speed does not vary as main feed A/M O/P varies determines that malfunction is located in MTP control system upstream of pneumatic hydralic controller	Given a display that indicates main feed pump speed does not vary as main feed A/M O/P varies determines that trouble is in pnuematic hydralic controller 3C sec. 100%		[ ST 2 ]	
KNOWLEDGE			[ ST 1 ]	Main feed press. carried∳75 psi sbove steam press.	Sys. operation			[ ST 2 ]	
			[ ST 1 ]	<u>Per</u>	DiagPer mot		ite.	[ ST 2 '	Pgr-motor, observe feed pressure gage on MFP while taking control of govenor by hand
TASK SKILL	Take control of console from operator	Reproduces event	Shift main feed A/M to auto	Observe main feed pressure not at desired valve	Observe that MFP speed Jaries as main feed A/M O/P varies proceed to 1.3.7.3.1	Observe that MFP speed does not vary as main feed A/M O/P varies	Correct fault in pnuematic hydralic controller	Shift main feed A/M to remote manual	Shift control of main feed pump to local manual
		1.1	1.1.1	1.1.2	1.1.3	1.1.4	7	2.	2 2
ZVENT	Excess Feed Press	1:0:1							

EVENT 1.3.7 Freese Food	3.2.2.1	TASK Shift main feed A/M to	SKILL ST 2/ST 3;	KNOWLEDGE [ST 2/ST 3]	TRAINING OBJECTIVE Given a feed header pressure	COMMENTS
		.031			Configure and which a rest has been placed, isolate, disconnect for the system the feed header pressure controller in 10 min. w/o error	
	3.2.2.2	Shut supply air valve to feed header pressure controller	e e	Location of valve in feed control panel		
	3.2.2.3	thut supply air valve set point controller	उठा	Location of valve in feed pump control panel		
	3.2.2.4	Shut fed pressure sensing line valve to feed header pressure controller	No.	Location of valve in feed system		
	3.2.2.5	Open sensing line drain to bilges to relieve pressure 4 blow line clear	Mor	Personnel must be clear of drain line		
	3.2.2.6	Shut sensing line isolation valve	MOT	Location of valve no feed header pressure controller		
	3.2.2.7	Disconnect & remove Jeed header pressure controller	Mor use hand tools to disconnect & remove	is		
	3.2.2.8	[Insert repair & recallb.]	ı.	1.[	[ ]	
	3.2.2.9	Reinstall & re- connect feed leader pressure controller	मुठाः		Given s feed header pressure controller in which a fault has been corrected, reinsiall reconnect, & deisolate in 15 min. w/o error	

1.3 FAS 97				NAVT	RAEQU	JIPCEN 74-	C-0	151-1				
1.3 F												
TRAINING OBJECTIVE						[1.3.7.3.3]			Location of Given a pnuematic hyd. controller isolation valve in which a fault has been placed on main feed isolate, disconnect & remove from system in 15 min. W/o error			Given a nneu/hyd. controller in which a fault has been corrected reinstall, reconnect in system and deisolation in
KNOWLEDGE		Permit condensate to form in line until	Location	Location	[ST 2/ST 4]	Sys. operation			Location of G1 1solation valve in on main feed 1s		[ ]	5 4 5 4 7
SKILL	Mot	MOL	द्वा	Mot	[ST 2/ST 4]	Diag.			Mot		[ ]	
TASK	Shut sensing line drain valve	Open sensing line	Open sensing line isolation valve at feed header pressure control- ler	Open supply air valves to feed header press. & set point controller	Shift MFP A/M's to auto.	Observe proper operation of system & return control to operating personnel	Start stby. pump	Secure affected main feed pump	Shut inlet isolation valve to stem emission valve	Disconnec: and remove the pneumatic hyd. con- trolled stm. emission valve	[Insert repair & calib.]	Reinstall & reconnect pneu. hyd. controller
	3.2.2.10	3.2.2.11	3.2.2.12	3.2.2.13	3.2.2.14	2.15	2.3	2.4	2.5	2.6	2.7	2.8
EVENT	1.3.7 Excess Feed	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0										

COMMENTS								,
TRAINING OBJECTIVE			-	in service			Given a display indicating main feed header pressure @ 1500 psi or A P 75 psi determines that trouble is located in one of the following components - P :mtr., feed header pressure controller, c; set point controller in 1 min. 100%	Given a display indicating a MF A/M O/P4 as main feed pressure varies. Determines from the display that trouble is located in one of the following components-mainfeed A/M, range modifier or feed header pressure controller, in 1 min. 100%
KNOWLEDGE	Location of supply air valve under console		Location of gages on con- sole				Sys. oper.	Sys. oper.
SKILL			<u>Diag.</u>				in feed Diagobserve AP on main-Sys. oper. ained at atream gage & main feed press. gage prices. gage 7.3.5 on console	Diag-observe main feed A/M manual indicatior & main feed header press gage
TASK	Open supply air valve to main feed A/M sr	Notify top watch that repairs are completed & MFP may be used	Observe that MFP speed varies as main feed A/M O/P varies	Excess feed pressure condition still exists proceed to 1.3.7.3.1	Return control to oper.	Check MFP control sys. upstream	Observe that main feed press is maintained at 1500 psi or a \$\int\$p\$ \times \times \frac{1.3.7.3.5}{2}\$	Observe that MF A/M O/P Diag-observe main feed (7.5 ma'n feed press A/M manual indicatior v.ries. 6 main feed header pre gage
	2.9	2.10	2.11		2.12	æ	3.1	3.2
EVENT	1.3.7 Excess Feed Press							

EVENT		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	1.3 FAS 99 COMMENTS	~
1.3.7 Excess Feed Press	3.3	Observe that feed header pressure controller 0/p As main feed header pressure proceed to 1.3.7.3.4.2	Observe that feed header <u>Diag.</u> compare feed header pressure controller O/P on A as main feed header feed control pannel with pressure proceed to feed header pressure on 1.3.7.3.4.2 console	Sys. oper.	Given a display indicating feed header pressure controller 0/P as main feed header press. determines that trouble is located in range modifier or main feed A/M in 30 sec. 100%	•	
	3.4	Observe that fred header pressure controller O/P as main feed header pressure	Diagcompare feed head- er press. controller 3/P on feed control pannel with feed header pressure gage on console	Sys. Oper.	Jiven a display indicating feed header pressure controller O/P as main feed header pressure determines that trouble is faulty feed header pressure controller in 30 sec. 100%		
	3.4.1	Correct fault in teed header pressure control- ler					
	3.4.1.1	Shift main feed A/M to auto.	[ ST 2/ST 3 ]	[ ST 2/ST 3]	Given a feed header pressure controller into which a fau't has been placed, isolate, disconnect & remove from the system the feed header pressure controller in 10 min. w/o error		
	3.4.1.2	3.4.1.2 Shut supply air valve to feed header pressure controller	Mot Lc	Location of valve in feed control pannel			
	3.4.1.3	Shut supply air valve to <u>Mot</u> set point controller		Location of valve	ø		

Location of valve in feed pump control pannel

1.3 FAS 100

COMPLENTS								
TRAINING OBJECTIVE					-	Given a feed header pressure controller in which a fault has been corrected, reinstall reconnect, & deisolate in 15 min. w/o error		
TRAININ					_	Given a feed h controller in has been corre- reconnect, & d min. W/o error		
KNOWI, EDGE	n of n feed	Personnel must be clear of drain line	Location of valve no feed header pressure con- troller		-			Permit condensate to form in line until line is
MONOX	Location of valve in feed system	Personnel m be clear of drain line	Location of w no feed header pressure con- troller		u			Permit condensate to form in line until line is
SKILL				Mot use hand tool to disconnect & remove	-			
	JOK .	Hot	Mot	Mot us to dis remove		Kot	Mot	Not
TASK	Shut feed pressure sensing line valve to feed header pressure controller	Or.a sensing line drain Mor to bilges to relieve pressure & blow line clear	Shut sensing line isclation valve	Disconnet & remove feed header pressure controller	[Insert repair & recall] [	Neinstall & reconnect foad leader pressure controller	3.4.1.10 Shut sensing line drain valve	3.4.1.11 Open vensing line
	3.4.1.4	3.4.1.5	3.4.1.6	3.4.1.7	3.4.1.8	3.4.1.9	3.4.1.10	3.4.1.11
EVENT	1.3.7 Excess Feed Press							

COMMENTS								
TRAINING OBJECTIVE				[1.5.7.3.3 ]	Given a display indicating range mod. O/P for in relation to FHPC O/P forermines that trouble is located in main feed A/M in 30 sec. W/100% accuracy	Given a display indicating range modifier $0/P_A^{\dagger}$ as FHPC $0/P_{\dagger}^{\dagger}$ determine that trouble is faulty range modifier in 30 sec. W/100% accuracy		Given a range modifier into which a fint has been placed isolate, disonnect, & remove from the system the range modifier in 10 min
KNOWLEDGE	Location	Location	[ST 1/ST 4 ]	Sys. operation	Sys. Operation	Sys. operation	[ ST 2/ST 3 ]	Location if valves in feed control panel
SKILL	Мок	Hot	[ST 1/ST 4 ]	Diag.	Diag. compare range mod. 0/P under feed control panel w/ FHPC, 0/P under feed control panel	Diag. compare range modifier O/P under feed control panel W/FHPC O/P under feed control panel	[ST 2/ST 3]	Mot
TASK	Open sensing line isolation valve at feed header pressure controller	Open supply air valves to feed header press. 6 set point controller	Shift MFP A/M's to auto.	Observe proper operation of system & return contro trol to operating personnel	Observe that range modifier 0/P Afrom 15 psi to 47.8 psi as feed header pressure controller 0/P from 0 psi to 60 psi	Observe that range modifier 0/P\$ from 15 psi to 47.8 psi sa feed header pressure controller 0/P\$from 0 psi to 60 psi	Shift main feed A/M'a to manual	Shut supply air valves to range modifier & feed header pressure controller
	3.4.1.12	3.4.1.13	3.4.1.14	3.4.1.15	3.4.2	3.4.3	3.4.3.1	3.4.3.2
EVENT	1.3.7 Excess Feed Press							

COMMENTS										
TRAINING OBJECTIVE			Given a range modifier in which a feult has been corrected, install, reconnect & defeolate in 10 min. w/o error	1		o. [1.3.7.3.4.2] pg.		Given a MFP A/M station display indicating O/P # X/P determine that A/M is not operating properly		Given an operating MFF control shift from remote manual to local manual in 3 min. w/o procedural error
KNOWLEDGE	Location			Locetion-valves under feed control panel	[ST 1/ST 4]	Location of calib. [1.3.7.3.4.2] data		Sys. oper.	[ST 2/ST 3]	Coation of local manual control on MFP procedure
SKILL	Mor_use hand tools to disconnect & remove		Kot	Kot	[ST 1/ST 4]	Par text ret. renge mod 0/P sat L/W calib. deta		Disg. compere 0/P w/ I/P	[ST 2/ST 3]	Per not
TASK	Disconnect & remove range modifier	[Insert repair & calib.]	Reinstall & reconnect range modifier	Open supply air valves to range modifier & feed heeder pressure controller	Shift main feed A/H's to auto.	Observe that renge modifier O/P corresponds to feed header pressure controller O/P IAM calibration dats	Return control to oper.	Observe that MPP A/M O/P does not track with I/P on auto on 4-way A/M stations	Shift MFP A/M's to man.	Shift control of effected MFP to local manual
	3.4.3.3	3.4.3.4	3.4.3.5	3.4.3.6	3.4.3.7	3.4.3.8	3.4.3.9	3.4.4	3.4.4.1	3.4.4.2
EVENT	1.3.7 Excess Feed	35 9 14								

EVENT
1.3.7
Excess
Press

COMP										
TRAINING OBJECTIVE	Given an operating console w/ indications of faulty A/M station, isolate & remove comp. relay in 5 min. w/o procedural error			Given a repaired & recalibrated comp. relay, refnatall & reconnect in A/M station, & detaolate in 5 min w/o procedural error		Given an operating MFP A/M, shift control from local man-	ual to auto in 5 min. W/o pro- cedural error		Diag. compare MF press. Location of gages Given a display indicating I/F to boiler press. text- calib, data to set point controller is ret.  \( \int \) P xmtr's are operating properly in 1 min w/100% accuracy	Given a display indicating 1/P to set point controller is not proportional to \$\Delta\$ P be tween MP, pressure \$\epsilon\$ boller pressure, determine that \$\mathcal{A}\$ xatrs are operating improperly in 1 min. \$\pi\$/100% accuracy
KNOWLEDGE	Location-valve Under console	Location-comp. relay in MPF control panel	[ 1	Location		Procedure to shift MFP to re-	[ST 1/ST 4]		Location of gages calib, data	1.3.7.3.5
SKILL		Mot-use of hand tools to disconnect & re- move comp. relay		Mct_use of hand tools		er mot	[ST 1/ST4]		<u>Diag</u> , compare MF press. to boller press. text- ret.	1.3.7.3. <u>5</u>
TASK	Shut supply air to affected MPP A/M	Disconnect & remove compensating relay	[Insert calib. & repair] [	comp. relay	Open aupply air to MF: A/M	Shift control of affect- <u>Ner mot</u> ed MFP to remote manual	Shift MFP A/M's to auto.	Return control to oper.	Observe that I/P to set I point controller is proportional to AP between MF pressure & boller pressure accelling to calib, data proceed to 1.3.7.3.7	Observe that I/P to set point controller is not proportional to $\Delta P$ between MF press. & boller press. according to calib. data
	3.4.4.3	3.4.4.4	3.4.4.5	3.4.4.6	3.4.4.7	3.4.4.8	3.4.4.9	3.4.4.10 Return	s	٠ • •
	Feed									

COMMENTS

1.3.7 Excess Feed Press

TRAINING OBJECTIVE	Given a display indicating 2.4P xmrrs connacted in series, identify faulty AP xmrr. in 1 min 1, 100% accuracy	[ ST 2/ST 3 ]	Given a 4P xmtr into which a fault has been placed, isolate & remove from system in 10 min w/o pro- cedural er.vra			[ ]	Given a AP xmtr in w'ich a fault has been repaired, reinstall, & deisolste in 19 min. w/o procedural error			[ ST 1/ST 4 ]	
KNOWLEDGE	Sys. oper.	[ST 2/ST 3]	Location of valve	Location of valves	Location under MPP control panel	[ ]		Location	Location	[ ST 1/ST 4]	
SKILL	Per, O/P from P xmtrs = indicate "B" b/r AP xmtr. fauiry, O/P # indicates "A" b/r AP xmtr.	[ ST 2/ST 3 ]	<b>19</b>	Mot	Mor-use of hand tools to disconnect & re- move	[	Mor-use of hand tools to reinstall	Мат	Mot	[ ST 1/ST 4 ]	
TASK	Identify affected AP matr.	Shift MFP A/M's to [remote manual	Shut supply air to P	Shift HP & LP isolation valves to affected AP xmtr.	Disconnect & removeAP	[Insert repair & calib. ]	Install 6 reconnect AP	Open HF & LR isolation valves to AP xmtr.	Open supply air to AP xatrs.	Shift MFP A/M's to auto.	Return control to oper. peraonnel
	3.6.1	3.6.11	3.6.1.2	3.6.1.3	3.6.1.4	3.6.1.5	3.6.1.6	3.6.1.7	3.6.1.8	3.6.1.9	3.6.1.10

EVENT
1.3.7
Excess Feed
Press

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TRAINING OBJECTIVE	Given a display indicating a properly operating set point controller determine that fault is in feed pressure controller in 1 min. w/ 100% accuracy	Obsrrve that set point 1.3.7.3.7 <u>Diag.</u> -compare 1.3.7.3.7 Location Given a display indicating a controller is not stable set point controller at some value w/ 30 psi & 0/P gages control panel determine that component if from AP xmtrs.	[ ST 2/ST 3 ]	Location of valves Given a set point cont. in which a fault has been placed, isolate & remove from system in 10 min. w/no procedural error			Given a set point controller in which a fault has been repaired install & defsolate in 10 min. w/no procedural errors		[ ST 1/ST 4 ]	
KNOWLEDGE	t location of gages in MFP control panel	e 1.3.7.3.7 Location /Pof gages in NFP control panel	[ ST 2/ST 3 ]	Location of valves	Location under MFP control panel	( )		Location of valves	[ ST 1/ST 4 ]	
SKILL	Diagcompare set point location of gages controller I/P & O/P in MFP control gages.	1.3.7.3.7 <u>Diag</u> -compars set point controller I & O/P gages	[ST 2/ST 3]	Мов	Mot use of hand tools	[ ]	Mor-use of hand tools	Mat	[ST 1/ST 4]	
TASK	Observe that set point Diagcompare set po controller O/P is steady controller I/P 6 O/P w/ 30 psi I/P from dP gages xmtrs. Proceed to 1.3.7.3.9	Obsrrve that set point controller is not stable at some Value w/ 30 psi I/P from AP xmtrs.	Shift MFP A/M's to man.	Close supply air to AP xmtrs. & set point controller	Disconnect & remove set point controller	[Insert repair & calib.]	Install & reconnect set point controller	Open supply air to set point controller & P xmtrs.	Shift MFP A/M's to auto.	Return control to operating personnel
	3.7	3.8	3.8.1	3.8.2	3.8.3	3.8.4	3.8.5	3.8.6	3.8.7	3.8.8

106	
TAS	
1.3	

COMPENSITS	
TRAINING OBJECTIVE	Given a faed header pressure controller in which a faulty set point belongs has been placed, determine fault in 3 min. w/1002 /centacy
KNOWLEDGE	System operation relation
SKILL	ä
TASK	Observe that feed header Diag. pressure controller does not respond properly to 0/P of set point con-
	3.9
EVENT	1.3.7 Excess Feed Press

End of Excess Feed

COPPENTS	Excass air to oil causas hi S/H outlat temp.					
TRAINING OBJECTIVE		Given a display indicating proper setting of excess air adj, determine that trouble is not in excess air adj. in 30 sec #/100% accuracy	Givan a display indicating incorrect setting of excess air adj. determins that excess sir adj. is causs of troubla in 30 sec. w/100% accuracy	Givan s display indicating incorrect setting of excess air sdj. sst. at corract satting in 1 min w/100% accuracy	Given a display indicating a correctly operating excess air adj. determina that excess air adj. is not causa of trouble, 5 fault is in A/F xmtr. or fuel loop in 1 min. w/100% accuracy	Given a displsy indicating a faulty excass air adj. datermine that excass air sdj. is csuse of trouble in l min. w/look accuracy
KNOWLEDGE	System operation location of cal's. data	Propar settings 50% for overload sprayer plates 56-60% for full power sprayer plates	1.3.8.2.1 Proper setting= 50% for overload sprayer plates 56-60% for full power sprayer plates	1.3.8.2.1 Proper satting— 50% for overload sprayer plates 56-60% for full power sprayer plates	Sys. oper. location	Sys. oper. location
TT.⊿S	Diag. per mot fext ret	Diag.	Diez.	Per mot	Dieg.	Diag.
TASK	Observes event-comp. sys. <u>Diag. per mot</u> in auto S/H outlat <u>text_ret</u> temp. → 950 F	Observe proper setting of excass air adj. proceed to	Observe improper setting Diag. of excess air sdj.	Adjustsetting of excess air adjuster	Observe excess air adj. O/P = I/P w/ 50% setting proceed to 1.3.8.2.5	Observs axcess air adj. O/P # I/P w/50% satting
	1 2	2.1	2.2	2.2.1	2.3	2.4
EVENT	1.3.8 Excess supar-leat outlet temperatura		115			

EVENT		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COPPUENTS
1.3.8 cont. Excess Sucer-Heat Outlet Temperature	2.4.1	Correct fault in excess air adjuster/Fault not not corrected pro.1.3.	in excess 1.3.1.3.2.3.1 thru Fault not 1.3.1.3.2.4.4.2 pro.1.3.8.2.5	hru 1.3.1.3.2.3.1 4.4.2 thru 1.3.1.3.2.4.4.2	1 1.3.1.3.2.3.1 thru 1.3.1.3.2.4.4.2 4.2	
. 4.1.1	1:1	Shut air supply to air ilow xmtr. and excess air adjuster		Location (A/F xmtrspace exc. air adj. under console)		
2.4.1.2	1.2	Disconnect and remove Mot.use hand tools excess air adjuster to disconnect and remove	Mot.use hand tools to disconnect and remove	Location of excess air adjuster under console		
2.4.1.3	1.3	Insert calibration and reapir				
2.4.1.4	1.4	Reinstalls and re- connects excess air adjuster			Given a repaired and recalibrated excess air adjuster reinstall in system in 10 min. With no procedural errors.	
2.4.2	8	Evaluates results of corrective actions	Disg observe con- S sole indications as unit is put back in service to determine if corrections are success-	Sys. operation if 88-	Given an operating console from which excess air adjuster fault has been removed, deter- mine from console front indications that unit is operating sat.	
2.4.2.1	2.1	Open supply air to air flow xmtr. and excess air adjuster		Sys. operation excess air adjuster output should now be = to air flow xmtr. output		
2.4.2.2	2.2	Parallel indicators on boiler master A/M stat.				

		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMPE
		Shift FO A/M sta. to auto. [ST 4]	[ ST 4 ]	ST 4 1	1 ST 4 .	
h <b>eat</b> ature	2.4.2.3	Shift FD3 A/M sta. to auto. [ST 4]	[ ST 4 ]	[ ST 4 ]	Console is now one kind remote man. control on boiler master A/M sta.	
	2.4.2.4	Observe system response in that stack is clear while manipulating syst in one knob	Per MEM - observe console parameters and periscope'smoke density meter for sat, operation	Sys. operations	Given the operating console with excess air sdjuster fault corrected determine from console from indications, periscope and smoke density meter that system now has ability to steam with clear stack in 3 min.	
	2.4.2.4	2.4.2.4 Shift boiler master A/M sta. to auto [ ST 1 ]	[ ST i ]	[ ST 1 ]		
	2.4.2.4.2	2.4.2.4.2 Return control of console to operator				
	2.5	Observe A/F xmtr to be in calibration proceed to 1.3.8.3	Diag. Text ret.	Location of cadata formula = D/P-o/0 <sup>2</sup> x max	Location of calib.Given a display indicating data formula = a properly calibrated A/F xmtr D/P-o/0 <sup>2</sup> x max D/Pdetermine that fault is in oil 100 loop in 5 min w/100% accuracy	
	2.6	Observe A/F xmtr not to be in calibration	1.3.8.2.5 <u>Diag. text</u> zet		1.3.8.2.5 Given a display indicating Location of calib.a A/F xmtr. out of calib. data formula = determine faulty component in D/P=0/0 <sup>2</sup> x max D/P <sup>2</sup> ann. w/100% accuracy 100	
	2.6.1	Shut air supply and sensing lines to air flow transmitter	Hoc	Location (st xmtrspace)		
	2.6.2	Fault not corrected proceed to 1.3.8.3 Disconnect and remove air flow xmtr.	Mor-use hard tools Location of air to disconnect and flow xmtr. under remove console	Location of air flow xmir. under console	Given an opersting console in which an air flow xmtr. fsult has been isolated. remove air flow xmtr. from system in 5 mins. With no procedural errors.	

EVENT		TASK	SKILL	KNOWLEDGE	GE TRAINING OBJECTIVE	COMMENTS
1.3.8 Excess	2.6.3	[Insert cal. and repair]	[ ]	[ ]	]	_
Super-near Outlet Temperature	2.6.4	Reinstall and reconnect sir flow xmtr.	Mot-use hand tools to reinstall and reconnect	m	Given a repaired and recalibrated air flow xatr. reinstall and reconnect in system in 5 min. with no procedural errors.	air flow ystem in
	2.6.5	Open air supply and sensing lines to air flow xmtr.	Not	Location		
	2.6.6	Parallel boiler master A/M sta. indicators	Per not			
	2.6.7	Shift FO A/M to auto.	[ ST 4 ]	[ ST 4 ]		
118		Shift FDB A/M sta. to auto. [ ST 4 ]	[ ST 4 ]	[ ST 4 ] Console is now it	[ ST 4 ] Given an operating console with air flow Console is now in xmtr. fault removed determine fron console one knob remote manfront indications, periscope and smoke density	ir flow n console smoke density
		Stuck not clear proceed to 1.3.1.3.3		control on boiler master A/H sts.	meter that system now has ability to steam with clear stack in 3 min.	to steam with
	3	Observe fuel loop	Dias, per mot	Sys. oper.		
	3.1	Observe characterizing relay O/P corresponds to I/P with calibration data proceed to 1.3.8.3.3	Diag. Text ret.	Location of calib, data- tech manual	Given a display indicating a properly calibrated char- acterizing relay determine that fault is in FO control valve 6 not charact. relay in 5 min w/100% accuracy	
	3.2	Observe instacterizing relay G/F does not correspond to I/F with calibration data	1.3.8.3.1 Diag. Text ret.	1.3.8.3.1 Location of calib. data- tech manual	Given a display indicating a characterizing relay out of calib, according to calib, data determine that char, relay is source of trouble in 5 min w/1002	

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J.3 COMMENTS								ů.	<b>0</b> 0 0
TRAINING OBJECTIVE			Given an operating FO flow control valve and indication of normal system FD pressure assume control of FO pressure in local min. in 3 min. with no procedural errors	Location (under Given an operating console into console) which a char, relay fault has been placed isolate & remove Chār, relay in 5 min, with no procedural errors.		[ ]	Given an operating console and a repaired & recalibrated chsr, relay reinstall & reconnect in system in 5 min. With no procedural errors	Given s reinstalled & reconnected char. relay deisolate and return to service in 3 min.	Given an operating FO flow control valve and indications of normal FO system press effect remove manual control in 3 min. With no procedural errors.
KNOWLEDGE			Location of FO flow cont. valve hand jack and local press. gsge to (valve in space gage on gage board in space)	Location (under console)	Location of char. relay under console	-		Location	Location FO flow cont. valv. & local FO press. gage
SKILL			Per mot use hand jack on FO ficw cont. valve to take control and observe FO press gage to determine when control in loc_i manual is effected		Mot use hand tools to disconnect & remove	[ ]		Mot	on FO flow control valve to return control to remote manual observe FO press gage to determine when remote manual control is effected
TASK	Correct fault in charvelay	Fault not corrected proceed to 1.3.8.3.3	Shift control of FO flow control valve to local manual using hand jack	Shut air supply valve to char. relsy	Disconnect i smove char, relay	[Insert cal. & repair ]	Zeinstall & reconncet char, relay	Open supply air valve to char. relay	Shift control to FO flow control valve to remote manual
	3.2.1.		3.2.2	3.2.3	3.2.4	3.2.5	3.2.6	3.2.7	3.2.8
EVENT	1.3.8 Excess	Super-near Outlet Temperature							

.1.5 PAS										•
TRAINING ORJECTIVE COMMENTS	Sys. oper. FO Given a display indicating pressure relation improper calibration of FO to control pres. control valve, determine ure from char. source of trouble in 5 min. relay (control w/100% accuracy . press. x 5.63) + 20 psi = FO press.	1.3.1.3.9.2.1		Given an operating system shift control of FO pressure to the by-pass and isolate FO flow control valve			1			
KNOWLEDGE	Sys. oper. FO Giveressure relation impto control pres. con ure from char. sourelay (control w/l press. x 5.63) + 20 psi = FO press.		(By-pass located near F/O control valve-in space)	(Isolation valves Gilocated near F/O concontrol valve by in-space)			]			
SKILL	. Zer	[ ] ^		Mot-close one valve while open- ing another to maintain a smooth transition of con- trol		Mot use hand tools to disconnect & re- move		Mot		
TASK	Observe improper calibra- <u>Rer</u> tion of FO control valve	Shift control of FO flow control valve to local manual	Grack open FO flow control valve bypass	Shut FO inlet valve to FO flow cont. valve while opening by-pass to assume control of FO press on by-pass	Shut FO outlet valve	Disconnect & remove FO flow control valve	Insert repair ]	Reinstall & reconnect Fo flow control valve	Open FO flow control valve outlet valve	Crack open inlet valve
	3.3	3.3.1.	3.3.2	3.3 3	3.3.4	3.3.5	3.3.6	3.3.7	3.3.8	3.3.9
EVENT	1.3.8 Excess Super-heat Outlet Temperature			120						

COMMENTS					
TRAINING OBJECTIVE				[ Sr 1 ] ·	
KNOWLEDGE				[ ST 1 ]	
SKILL	[1.3.1.3.1.0.2.3]	Mcr use hand jack to assume control in re- mote manual		[ ST 1 ]	
TASK	Shut by-pass valve while opening inlet valve to assume control of FD pressure on FO flow control valve in local manual	Shift control of FO flow control valve to remote man.	Insert cel. for min.	Shift FO A/M sta. to auto [ST 1 ] and observe stacks clear	Return control to operator
	3.3.10	3.3.11	3.3.12	3.3.13	3.3.14
EVENT	1.3.8 Excess Super-heat Outlet Temperature				

End of high super head outlet temperature

		SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
Incorrect MFP r control	recir.				
Observe event-recir. valve doea not close at proper time	oir.	Diag MFP at higher speed than normal for boiler load	System operation Given a display recirc. valve recirc. control should close when determine that MFP discharge operating properolume above 220.6 w/100% accuracy	Given a display of a MPP recirc. control system, determine that system is not operating properly in 1 min w/100% accuracy	
Observe system		Per	sys. oper.		
Observe that toggling relay $0/P = 65$ psi when $F/F$ xmtr. $0/P > 13.4$ psi proceed to $1.3.9.2.3$	togaling 5 psi when 7 13.4 10.1 1.3.9.2.3	Diag.	Location of gages under MTP control panei	Given a display indicating a toggling relay that is operating properly, determine that toggling relay is not source of truble in I min. w/100% accuracy	
Observe that toggling relay $J/P$ 65 psi when $F/F$ xmtr. $J/P$ 913.4 psi	ing then t psi	<u>Diag</u> .	1.3.9.2.1 Location of gages under MFP control panel	Given a display indicating a togaling relay containing a fault, determine that togaling relay is source of trouble in 1 min w/100% accuracy	
Correct fault in toggling relay					
2.2.1.1 Close supply sir to toggling relay		Yor	Location of valve	Given a display containing a toggling relay in which a fault has been placed, isolate, disconnect, & remove toggling relay in 5 min.	
2.2.1.2 Close supply air to F/F xmtr.	F/F	Mot	Location of valve		
2.2.1.3 Disconnect & remove toggling relay	_	Mot-use of hand tools	Location of toggling relvy		

COMMENTS

IVF		celay in been re-	ou/n ou	eelay in been re- econnect iin, w/no			ndicating a ansfer rating ine that ransfer e of w/100%	ndicating transfer ault leter- live is in 1 min.
TRAINING OBJECTIVE		Given a toggling relay in which a fault has been repaired, install, reconnect	& defsolste in 5 min w/no procedural error	e 1.3.9.2.2.1.6 Given a toggling relay in which a fault has been repaired, install, reconnect & deisolate in 5 min. Who procedural error	s [1.3.9.2,1]		Given a display indicating 3-way pneumatic transfer valve that is operating correctly, determine that 3-way pneumatic transfer valve is not source of trouble in 1 min. w/100% accuracy	Given a display indicating a 3-way pneumatic transfer valve in which a fault has been placed, determine that 3-way valve is source of trouble in 1 min. w/100% accurscy
KNOWLEDGE		Location	Location of valve	Location of valve 1.3.9.2.2.1.6 Given a toggili which a fault   paired, instal. \$ delsolate in procedural erre	Location of gages [1.3.9.2.1]		Location of gages supply air press. to 3-way valve must be 30 psi	1.3.9.2.3 Location of gages supply air press. to 3-way valve must be 30 psi
SKILL	~	Mot-use of hand tools						
	_	Not-1	मुल्	Hot	Liss		D15g.	D18k.
TASK	[Insert repair & cslib procedure ]	Install & reconnect toggling relay	Open supply air to toggling relay	Open supply air to F/F xmir.	Observe that toggling relay 0/P = 65 ps1 when F/F xmtr. 0/P  13.4 ps1	Fault not corrected proceed to $\frac{1.3.9.2.3}{}$	Observe that O/P of 3 way pneumatic transfer valve = 30 psi when O/P of toggling relay = 65 psi proceed to 1.3.9.2.5	Observe that O/P of 3-way pneumatic transfer valve # 30 psi when O/P of toggling relay = 65 psi
	2, 2, 1, 4	2.2.1.5	2.2.1.6	2.2.1.7	2.2.1.8	2.3	2.3	4.
EVENT	1.3.9 MFP	wecirculation valve control						

EVENT		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMPENTS
1.3.9 MFP	2.4.1	Correct fault 3-way pneumatic transfer valve				
valve control	2.4.1.1	Shut supply air to tocgling relay	Kot	Location of valve	Given a display containing a 3-way pneumatic transfer valve in which a fault has been placed, isolate, dis- connect & remove from system in 5 min w/o procedural errors	
	2.4.1.2	Shut supply air to 3-way Motpenmatic transfer valve	ίο <sub>ι</sub> .	Location of valve		
	2.4.1.3	Disconnect & remove 3-way pneumatic transfer valve	Mot-use of hand tools	Location of 3-way pneumatic transfer valve		
	2.4.1.4	2.4.1.4 [Insert repair procedures ]	1 ( ) (		[ ]	
	2.4.1.5	Install & reconnect 3- way pneumatic transfer valve	Mot_use of hand tools	Location of	Given a repaired 3-way pneumatic trainsfer valve, reinstall, connect, & deficolate in 5 min. w/no procedural error.	
	2.4.1.6	2.4.1.6 Open supply air to toggling relay	Mot	Location of valve		
	2.4.1.7	Open supply air to 3-way MOL pneumatic transfer valve	Mor	Location of valve		
	2.4.1.8	Observe that $6/P$ of 3-way <u>Diag.</u> pneumatic transfer valve = 30 psi when $6/P$ of toggling relay = $65$ psi	Diag.	Location of gages	[1.3.9.2.3]	
		Fault not corrected proceed to 1.3.9.2.5				

					1.3 FAS 1.
	TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
2.5	Observe that MFP recir. control valve is closed when O/P of 3-way pneumatic transfer vslve = 30 psi proceed to 1.3.9.2.7	Diag.	Location of MFP recir. valve 3-way transfer valve	Given a display indicating a properly operating MPP recirc. control valve, determine that MFP recirc. control valve is not cause of trouble, & F/F xmtr. is faulty component in 1 min. w/100% accuracy	
5.6	Observe that MFP recirc. control valve is not close when O/P of 3-way pneumatic trans- fer valve = 30 psi	recirc. <u>Diag. 1.3.9.2.5</u> not rans-	1.3.9.2.5 Location of MFP recir. valv. 3-way transier valve	Given s display indicating a MFP recirc. control valve that does not close when 3-way pneumatic transfer valve 0/P = 30 psi determine that recirc. control valve is source of trouble in 1 min w/100% accuracy	
2.6.1	Correct fault in MFP recirc, control valve				MFP must be secured & isolated if valve is to be worked on, but not for positioner
2.6.1.1	Shut supply air to 3-way pneumatic trans- fer valve	Mot	Location	Given a display in which a MFP recirc. control valve containing a fault has been placed, isolate, disconnect, & re- move in 15 min w/no pro- cedural errors	
2.6.1.2	Disconnect MFP recirc. control valve diaphram	Mot-use of hand tools	Location		
2.6.1.3	Disconnect & remove MFI · scirc. control valve	Mor	Location-remove only if valve is source of trouble		
2.6.1.4	[Insert repair procedure]		-		

EVENT		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
1.3.9 MFP Recirculation valve control	2.6.1.5	Install & reconnect MTP recirc. control valve	<u> 100</u>	Location	Given a MFP recirc. control value in which a fault has been corrected, reinstall, connect & deisolate in 15 min. w/no procedural error	
	2.6.1.6	Open supply air to 3-way <u>Mor</u> pneumatic transfer walve	Mot	Location		
	2.6.1.7	Observe that MFP recirc. Disg, control valve is closed when 0/P to 3-way pneumatic transfer valve = 30 psi	Diag,	Location	[1.3.9.2.5]	
		Fault not corrected proceed to 1.3.9.2.7				
	2.7	Observe that F/F xmtr. O/P does not correspond to calib. data	Diag. text ret.	Sys. oper. Basic calib. D/P =q/o xmax0/	Sys. oper. Given a display indicating Basic calib. a faulty F/F xmtr., deter-D/F =q/o xmaxO/Pmine that F/F xmtr is source of trouble in 1 min. w/100% accuracy	
	2.7.1	Open equalizing valve on xmtr.		Location of valves (at xmtr. in space)		
	2.7.2	Shut sensing line valves	Mot	Location of valves (in space)		
	2.7.3	Blow down sensing to bilges				
	2.7.3.1	Open drain valve	Mot	(in space)		
	2.7.3.2	2.7.3.2 Blow down until all pressure is relieved	Pr. not observe vent while open- ing valve	PAL MOA observe Person must be clear vent while open-of vent while blowing ing valve		

COMMENTS	Some xmtrs, may be repaired in place de- pending on ships con-	figuration	,		
TRAINING OBJECTIVE		-	Given a repaired and recalibrated xmtr. reinstall & reconnecting 10 min. w/o procedural error.	[ STS ]	Given a display indicating a properly operating MFP recirc. control system, determine proper operation of system in 1 min. w/100%
DGE		-		5 ]	System oper.
KNOWLEDGE				S IS ]	Sy
SKILL	Mot-use hand tools to disconnect & remove			[ ST 5 ]	<b>Diag.</b> MFP at proper speed
TASK	Disconnect & remove xatr. if required	Insert repair & calib.	Reinstall & reconncet if xmrr. was removed	<pre>Place xmtr. in service [ ST 5 ]</pre>	Observe that MFP recirc. <u>Diag.</u> MFP at proper control valve closes speed at proper MFP discharge volume
	2.7.4	2.7.5	2.7.6	2.7.7	m
EVENT	1.3.9 MPP Recirculation	valve control			

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HAGAN OPERATIONAL READINESS INSPECTION

COMMENTS	평 4 년 1 년 급 - 1 년 급	NEQUIP	CEN 74	-0-013	1-1		
TRAINING OBJECTIVE	Given a diaplay tapre- Inspector wousenting a boiler control find boiler saystem w/boiler secured, cured, containing no water, per- ing no water, form observations accor- combustion 6 ding to NavSec form 9510/7feed systems manual, all iregulators tregulators turned tully counterclock wise excess a fill.			Given a display containing a F/O A/M w/o fault, perform test observe proper	operation of F/O A/M 6 record results in IA, 9510/7		
KNOWLEDGE	System Operation	Location of A/M console		Location of indicator on console	Location of knob on consile	Location of indicator on console	Location of question on form. Desired range (0-100%)
SKILL	water con- <u>Per Mot, Diag</u> ured, con-			Per	Per Mot	Per	Diag. Fer mot
TASK	Observe combustion & feed water control systems w/boiler secured, containing no water	Observe 70 A/M station	Observe proper operation of FO A/M	Observe FO A/M $0/P$ on "man" indicator to be " $0^{12}$	Turn FO A/M regular knob to the full clockwise position	Observe FO A/M O/P on "man" indicator to be 100% or greater	Observe proper operation of F/O A/M & mark Part 1 Question "A" "Yes". Proceed to 1.4.1.2
	Boiler secured (no wdff.)	1	1.1	1.1.1	1.1.2	1.1.3	1.1.4
EVENT	1.4.1 Cold Plant Inspection		1	130			

NAVTRAEQUIPCEN 74-C-0151-1

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COMMENTS				NAVI	KWEGOT	PCEN /	4-0-	0131-1					_	TV.
TRAINING OBJECTIVE		Given a display containing a F/O A/M in which a fault has been aloned asserted	test, observe improper opera- tion of F/O A/W & record					Given a display containing a Hagan F/O control valve,	determine that valve stem is not visible & record result in IC 9510/7.			Given a display containing	Arib A/M W/O rault, perform test, observe proper operation of FDB A/M & record results	in iD, 9510/7.
KNOMLEDGE		Location of indicator or console	Location of knob on console	Location of indicator on console	Desired range (0-100%)	Location of question on form		Location of valve Type of valve	Location of question on form			Location of indicator	Location of knob on console	Location of indicator
SKILL		7 <b>7</b> 2	Per Mot.	Рес	Diag	Per Mos		Per	Per Mat			Per	Per Mos.	Te <sub>Z</sub>
TASK	Observe improper operation of $F/O$ A/M	Observe F/O A/M "wan" O/P	Turn F/O A/M regulator knob to the full clockwise position	Observe F/O A/M "man" indicator	Observe $F/O$ A/M "man" indicator range $0 - 1002$	Mark IA "No ", & enter actual range in IB. Proceed tol.4.1.2	Observe F/O control valve	Observe that stem of Hagan P/O control valve is not visible	Mark 1C "stem not visible" Proceed to 1.4.1.3	Observe FDB A/M stations	Observe proper operation of FDB A/M stations	Observe #1FDB A/M "man" O/P=0%	Turn #1PDB A/M regulator knob to the full clockwise position	Observe flfDB A/M 'man" O/P = 100% or greater
	1.2	1.2.1	1.2.2	1.2.3	1.2.4	1.2.5	2	2.1	2.2	8	3.1	3.1.1	3.1.2	3.1.3

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COMMENTS										Omit ques- tions F&G No movement at FDB gov-
TRAINING OBJECTIVE			Given a display con-	which a fault has been placed, perform test,	tion of FDB A/M & record	9510/7				1.4.1.3.1 thru 1.4.1.3.2.7
KNOWLEDGE	Location of question desired range. (0=103%)		Location of indicator	Location of regulator knob	Location of indicator	Desired Range (0-100%)	Location of questions			1.4.1.3.1 thru 1.4.1.3.2.7 Mark each FDB A/M # including FDB master A/M in additional spacef in ID & IE
SKILL	Rer Mat.		Per	Per Mor	Per	<u>Diag.</u>	Per Mot.	Per Mot	Per Mot	1.4.1.3.1 thru 1.4.1.3.2.7
TASK	Mark #1 in space provided in ID & "Yes" in block	Observe 'mproper operation of FDB A/M stations	Observe #1 FDB A/M "man" 0/P	Turn #1 FD', A/M regulator knob to the foll clockwise position	Observe #1 FDB A/M "man" 0/P	Observe #1 PDB A/M "man" O/P Range < 0-100%	Mark #1 in space provided in ID & IE	Mark "NO" block in ID	Mark actual range in IE	Perform procedures 1.4.1.3.1 thru 1.4.1.3.2.7 for each additional FDB A/M. Proceed to 1.4.1.4
	3.1.4	3.2	3.2.1	3.2.2	3.2.3	3.2.4	3.2.5	3.2.6	3.2.7	3.3
EVENT	1.4.1 Cold Plant Inspection									

Observe proper operation of boiler A/M station

4.1

Observe boiler A/M station

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	Z Z		

KNOWLEDGE

SKILL

With the second second

Per Hot

Per

Observe boiler A/M "man" 3/P = 100% or greater

4.1.3

4.1.4

Per

Observe boiler A/M "m.n" O/P = 0%

4.1.1 4.1.2

1.4.1 Cold Plant Inspection

TASK

EVENT

Turn boiler A/M regulat knob to full clockwise position

COMMENTS

TRAINING OBJECTIVE	or Given a display containing	a fault, perform test, observe proper operation of boller A/M & record	
	ind'cate	knob on	
F)	of	of	
KNOWLEDGE	Location of ind'cator	Location of knob on console	

a boiler A/M station W/O	a fault, perform test,	observe proper operation	of boiler A/M & record	r results in IH, 9510/7	
	uo			ato	
	knob			1rd to	
	oę			of	
	Location of knob on	console		Location of indicator	

Desired range, location of question (0-1001)

Diag. Per Mot

Observe proper operation of boiler A/M 6 mark IH "Yes". Proceed to 1.4.1.5

Observe improper operation of boiler A/N station

4.2

Observe boiler A/M "man" C/P

4.2.1

Given a display containing a boiler A/M station in which a fault has been placed, perform test, observe im- proper operation of boiler	A/M, & Record results in IH & III, 9510/7	
Location of indicator	knob on	
of	of	
Location	Location of knob on console	

TH & LZ1, 9510	ndicator
	of 1
console	Location o

Per Mot

Turn boiler A/M regulator knob to fuil clockwise position

4.2.2

Observe boiler A/M "man" O/F

Observe boiler A/M "man" O/P range < 0-103%

4.2.4

4.2.3

Mark "NO" block in IH

4.2.5 4.2.6

Per

Per Mot

Mark actual range in II. Proceed

Diag Per

	itroller
to 1.4.1.5	Observe A/F controllar

	Per Mot
A/F	
oę	2
ton	0/F
operat	"man"
per	A/M
Obscrve proper operation of A/F controller	Set boiler A/M "man" O/F to
Obsc	Set
5.1	5.1.1

33% using regulator knob

Location of indicator & regulator

					7AM	TPAEQU	IPCE	N 74	-C-9151	-1				
COMMENTS														
TRAINING OBJECTIVE	[ ST 1 ]	[ ST 4 ]	Given a display containing an A/F controller W/O a fault,		& record results in IJ 9510/7		[ ST 1 ]	[ ST 4 ]	Given a display containing an A/F controller in which a	fault has been placed, perform test, observe im- proper operation of A/F controller & record results in IJ, 9510/7			[ ST 4 ]	Given a display containing a low sig selector in which a fault has been placed, per- form test, observe improper operation of low sig selector, & record result in IK, 9510/7
KNOWLEDGE	[ ST 1 ]	[ ST 4 ]	Location of indicator (FDB master A/M 'man"	signal should not move) Location of question.	Desired range (0-100%)	Location of indicator & regulator	[ ST 1 ]	[ ST 4]	Location of indicator	Location of question Desired range (0-100%)			[ ST 4 ]	Location of indicator, sys. oper.
SKILL	[ ST 1]	[ ST 4]	Jer	6. Rer Mot		Per Mat	[ ST 1 ]	[ ST 4 ]	Per	Per Mat			[ ST 4 ]	Per
TASK	Shift FDB A/M's to "auto"	Shift FDB master A/M to "auto"	Observe FDB A/M station O/Ps go to 100%	Mark "YES" in IJ. Proceed to 1.4.1.6. Rer Mor	Observe improper operation of A/F controller	Set boiler A/M "man" J/P to 33% using regulator knob	Shift FDB A/M's to "auto"	Shift FDB master A/M to "auto"	Observe FDB A/M O/Ps. Do not go to 100%	Mark "NO" in IJ. Proceed to 1.4.1.6	Observe low signal selector	Observe proper operation of low signal selector	Shift F/O A/M to auto [ST 4]	Observe F/O A/M "auto" O/P = 70%
	5.1.2	5.1.3	5.1.4	5.1.5	5.2	5.2.1	5.2.2	5.2.3	5.2.2	5.2.3	9	6.1	6.1.1	6.1.2

1.4.1 Cold Plant Inspection

1.4 FAS PG (	COMMENTS				
	TRAINING OBJECTIVE			[ ST 4 ]	Given a display containing a low sig. selector in which a fault has been placed, perform test, observe improper operation of low sig. selector is record result in IK, 9510/7
	KNOWLEDGE	location of question		[ ST 4 ]	Location of indicator, sys. oper.
	SKILL	Per mot		[ ST 4 ]	<u>Per</u>
	TASK	Mark "yes" in IK proceed to 1.4.1.7	Observe improper operation of low sig.	Shift F/O A/M to "auto" [ ST 4 ]	Observe F/O A/M "auto" G/P > 0%

i.1.3

1.4.1 Cold Plant Inspection

EVENT

6.2

6.2.1

6.2.2

Location of question

Per mot

Mark "no" in IK

6.2.3

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KNOWLEDGE TRAINING OBJECTIVE COMMENTS			Location of indicator Given a display containing	roper re-		Location of question.  Desired range (0-100%)  The street of the street can be street to the street can be street	74-c-	Location of indicator Given a display containing		Location of indicator record results in IL & IM,	Destred Range (0-100%)	Location of question		
SKILL			Per	Per Mor.	प्रकट	Diag		Per	Per Mot	Ted	<u>Diag</u>	Per Mot	Per Mat	
TASK	Observe feed A/M	Observe proper operation of feed $A/M$	Observe feed A/M "man" 0/P = 0%	Turn feed A/M regular knob to full clockwise position	Observe feed A/M 'man' O/P = 100% or greater	Observe proper operation of feed A/M & mark "YES" in IL Proceed to 1.4.1.8	Observe improper operation of feed A/M	Observe feed A/M "man" O/P	Turn feed A/M regulator knob to full clockwise position	Observe feed A/M "man" O/P	Observe feed A/M "man" O/P range#0-100%	Mark "NO" in IL	Mark actual range in space provided in IM. Proceed to 1.4.1.8	Observe feedwater control valve stroke
	7	7.1	7.1.1	7.1.2	.1.3	7.1.4	7.2	7.2.1	7.2.2	7.2.3	7.2.4	7.2.5	7.2.6	<b>6</b> 0

1.4.1 Cold Plant Inspection

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COMPLENTS									3	. <del>.</del> .
TRAINING OBJECTIVE								[ST 41	Location of indicator Given a display containing a feed flow controller controller chick a fault has been plant	and a feed A/M station, per- form test, observe improper operation of feed flow con- troller, and record results in I-O, 9510/7
KNOWLEDGE	Location of valve	Location of indicator and regulator knob	Location of valve	Desired valve mov_ment	Location of Ouestion			[ST 4]	Location of indicator	
SKILL	Per	Per_Mot	Per	Diag	Per Mot			[ST 4]	Per	
TASK	Observe feed valve, noting position of marker on stem	Using feed A/M regulator knob set "man" $0/P\ @\ 100\%$	Observe feed valve, noting position of market on stem	Observe that feed valve positions do not correspond to 0%. 50% or 100% feed A/M 0/P	Mark "NO" in I-N. Proceed to 1.4.1.9	Observe feed flow controller	Observe proper operation of feed flow controller	Shift feed A/M to Auto [ST 42]	Observe that feed A/M "auto" O/P Å to 100% or greater	Mark "NO" in I-O. Proceed to 1.4.1.10.
	8.2.4	9.2.5	8.2.6	8.2.7	8.2.8	6	9.1	9.1.1	9.1.2	9.1.3
EVENT	1.4.1 Cold Plant	Inspection								

				MAPTRA	EQU IPC	EN 74-	C-01:	51-1			
COMPGENTS				ψ P			D/L xmtr 0/P = 60 osi be-	ceues no water in boiler			
TRAINING OBJECTIVE		[ ST 4 ]	Given e displey containing a feed flow controller in which a feel to been older to the teen of the teen of the teen to be the	feed A/M stetion, perform test, observe improper operation of feed flow controller, 5 record results in I-O, 9510/7.			Given a display of all boiler matra et proper	velue, make observetions of primary element xmtrs, and record results in I-P, I-Q 9310/7			
KNOWLEDGE		[ ST 4 ]	Location of indicator desired 0/P sys. oper.				Location of xmtr	Location of xmtrs, number of xmtrs. S/F xmtr, F/F xmtr, A/F xmtr, steam pressure controller	Location of question	Location of question	
SKILL		[ SI 4 ]	Per.				Per	7 <b>48</b>	Per Mot.	Per Mat	
TASK	Observe improper operation of feed flow controller	Shift feed A/M to auto [ST 4]	Observe that feed A/M "auto" O/P ‡ to 100%	Mark "NO" in I-O. Proceed to 1.4.1.10.	Observe primary element xatrs O/Ps	Observe primary element xmtrs to be at proper values	Observe D/L xmtr O/P = 60 psi	Observe O/P of all xtmrs. associated with boiler except D/L to be at "O" psi	Mark "NO" in I-P	Mark "D/L xmtr # -", 6 60 psi O/P in space provided in I-Q Proceed to 1.4.1.11	Observe primary element xmtr O/P's not at proper values
	9.2	9.2.1	9.2.2	9.2.3	10	10.1	10.1.1	10.1.2	10.1.3	10.1.4	10.2

1.4.1 Cold Plant Inspection

COMPTENTS			1	"YES" in I-P NV indicates DALAMET not at proper value DA	EN 74-0	Applicable to 0	2	Omit if sys- tem uses Hagen	char. relay		
TRAINING OBJECTIVE	Given a display indicating D/L xmtr O/P @ proper value	value, make observations of primary element xtrs & record results in I-P & I-Q, 9510/7		Given a display of all primary element xmtr O/Ps @ O psi, make ob- x servations & record Fraults in I-P, 95°./7				ST 3	Given a display containing ca G.R. char. relay w/o a fault. A a F/O A/M. perform	test, observe proper opera- tion of G.R. char. relay, & record result in I-R 9510/7	
KNOHLEDGE	Location of mmtrs	Location of question		Location of xmtrs	Location of question			ST 3	Location of F/O A/M	Location of char. relay (under console) Location of rack in cher. relay. Proper movement (0-1001)	Location of P/O A/M
SKILL	<u>Ter</u>	Per Mot	Per Mot.	Per	Per Mot			ST 3	Per Kot	Per	Per Mot
TASK	Observe O/P of xmtr other than P/L xmtr =/ Opsi	10.2.1.1 Mark "NO" in I-P	10.2.1.2 Mark "D/L xmtr #-" & D/L xmtr O/P <u>Per Mot.</u> in I-Q. Name of other xmtr & O/P. Proceed to 1.4.1.11	Observe that O/P of all primary element xmtrs = 0 psi	10.2.2.1 Mark "YES" in I-P. Proceed to 1.4.1.111.	Observe G.R. characterizing relsy	Observe proper operation of G.R. characterizing relay	Shift P/O A/M to "man" ST 3	Using F/O A/M regulating knob, set F/O A/M "man" O/P @ "O".	Observe char, relay rack to be at lowest position	Using F/O A/M regulating knob, set <u>Per Mor</u> F/O A/M "msn" U/P @ 100%
	10.2.1	10.2.1.1	10.2.1.2	2.2	10.2.2.1	11	11.1	11.1.1	11.1.2	11.1.3	11.1.4

1.4.1 Cold Plant Inspection

Location of G.R. char. relay, 100% strok-position

Diag.

Observe that G.R. char. relay rack does not travel to exactly to 100% stroke when F/O A/M O/P = exactly 100%

11.2.5

Location of question

Per Mot

Mark "NO" in I-R

11.2.6

Mark actual F/O A/M O/P (min. & max) required to make rack move full stroke in space provided in I-S.

Froceed to 1.4.1.12.

Observe supply air to be free of water & oil

12 12.1

Observe supply air

	TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
11.1.5	Observe char. relay rack to be fully extended	Per	[1.4.1.11.1.3 ]		
11.1.6	Mark "YES" in I-R. Proceed to 1.4.1.12	Per Mot	Location of question		
11.2	Observe improper operation of G.R. char. relay				
11.2.1	Shift F/O A/M to man [ST 3]	[ ST 3 ]	[ ST 3 ]	[ ST 3 ]	
11.2.2	Using F/O A/M regulating knob, set F/O A/M "man" O/P @ 0%	Per Mer	Location of F/O A/M	Given a display containing a G.R. char. relay in which	
11.2.3	Observe position of char. relay rack	Per	Location of char. re- lay & rack	a rault has been placed, on F/O A/M, perform test, observe improper operation	
11.2.4	Using F/O A/M regulating knob, set <u>Per Mor</u> F/O A/M "man" O/P @ 100%	t <u>Per Mot</u>	Location of F/O A/M	of G.K. Char. Felly & record results in I-R & I-S, 9510/7	

1.4.1 Cold Plant Inspection

EVENT

PG 11

1.4 FAS

PG 12

1.4 FAS

COMPLENTS											•
TRAINING OBJECTIVE	Given a display of supply air filter operating properly, perfore test, determine that	air is free of oil & water, & record results in I-T, 9510/7.				Given a display of supply sir filteroperating improperly,	perion test, determine that air is contaminated with oil 6 water & record results in I-T, 9510/7	Record result in I-T, 9510/7			Given a displsy containing air reducers set at proper values, perform observation of reducers, 6 record results in I-U, 9510/7 sells
KNOWLEDGE	Location of drain valve	Appearance of water & oil	Location of drain valve	Location of question		Location of drain valve	Appearance of water 6 oil	Location of valve	Location of question		Location of reducers Giv b pressure gages.  Desired values  Hagen - 65 psi. Mason of  Nielan -22 psi. Lesile sul  - 22 psi. Volume boo-  ster - 22 psi. GR  char relay - 65 psi  Psys Range mod-50 psi  P A/M stations - 50 psi
SKILL	MOE	Per	Mot	Per Mat		MOL	Per	Mot	Per Mot		Jag.
TASK	Open supply air filter down- stream drain valve	Observe no water or oil from drain valve	Shut supply air filter down- stream drain valve	Mark "YES" in I-T. Proceed to 1.4.1.13	Observe supply sir contains water & oil	Open supply air filter down- stream drain valve	Observe water or oil comes from drein valve	Shut supply air filter drain valve	Mark "NO" in I-T. Proceed to 1.4.1.13	Observe supply air pressure	Observe supply air pressures set at correct values
	12.1.1	12.1.2	12.1.3	12.1.4	12.2	12.2.1	12.2.2	12.2.3	12.2.4	13.	13.1
EVENT	1.4.1 Cold Plant Inspection						141				

1.4 FAS PG 13 COMMENTS					
TRAINING OBJECTIVE		Given a display containing air reducers set at incorrect valves, perform observations and record results in I-U & IV, 9510/7			Applicable Given a completed 9513/7 Part comments, ex— I, explsin deficiencies in plain deficiencies "remarks" section listed in Part I, 9510/7, sys. oper.
KNOWLEDGE	Location of question	1.4.1.13.1	Location of question	Location of question	Applicable G comments, ex- I plain deficiencies listed in Part I, 9510/7, sys. oper.
SKILL	Per mot	Per	Per mot	Per mot	Per mot diag.
TASK	13.1.1 Mark "yes in I-U proceed to 1.4.1.14	Observe supply air pressures set at incorrect valv's	13.2.1 Mark "no" in I-U	13.^.2 Mark name of incurrect- <u>Per mot</u> ly set reducers & actual values in I-Y proceed to <u>1.4.1.14</u>	Complete remarks section of 9510/7
	13.1.1	13.2	13.2.1	13.^.2	14
EVENT	1.4.1 Cold Plant	Inspection			

End of cold plant inspection

1.4 PAS PG 15	COMMENTS	Inspector finds boiler on line, with operating personnel on watch. Does not assume watch, but observes.	NAVTRAEQUIP	CEN 74-C-	-0151-1		
	T'AMING OBJECTIVE .	In 115 on wa	Given a display of an operating boiler with control system, determine steaming load, and enter result in II-A, 9510/7		Given a display with 1 or 2 hollers on line, deter- rane # of boilers & enter result in II-B, 9510/7		
	KNOWLEDGE		Methods- 1.) Pen recorder 2.) Fuel meter reading 3.) S/F xmtr. O/F 4.) Burner capacity curve (location of burner cap. curves in boiler manual)	Thousand LB/LR, (enter manuevering if manuevering)	Ask operating personnel	Location of question	Location of A/M stations
	SKILL		Per, diag.	Per sot	Per	Mot	<u>Per</u>
	TASK	Observe combustion & feed water control systems with boiler steaming under stable & maneuvering conditions	Determine steaming load of boiler	Enter steaming load in II-A proceed to 1.4.2.2	Determine # of boilers on line	Enter # of ballers on line in II-B proceed to 1.4.2.3	Observe operation of combustion control system

Given a display of a combustion system in full auto, determine that system is in full auto. 6 enter result in II C, 9510/7

Position of xfer. switches to indicate "auto" operation "full auto" = A/M for

Per

Observe combustion control system to be in "full automatic" operation

3.1

2.1

m

all regulated elements

1.1

Boiler Steaming

1.4.2 HOT PLANT INSPECTION

Position of xfer.  Position of xfer.  switch  Position of xfer.
Per mot.  Per mot.  Per mot.  Per mot.
3.2.2.3 Observe boiler master REL A/M in san. 3.2.3.1 Mark 'no" in II-D-1 REL auto 3.2.4.1 Mark 'yes" in II-D-2 REL 3.2.4.1 Mark 'yes" in II-D-2 REL 3.2.5. Observe F/O A/M in man. REL 3.2.5.1 Mark 'no" in II-D-2 REL
3.2.2.3 3.2.3.1 3.2.4 3.2.4.1 3.2.5.1

1.4.2 Hot Plant Inspection

COMMENTS										
TRAINING OBJECTIVE							Given a display of a combustion system w/ F/O A/M in remote manual, observe control of P/O press. in remote man. & record results in II-E, 9510/7		Local manual - F/O Given a display of a combustion press. controlled system w/ control of F/O press. by operating in local, anual, observe local personnel using manual control, 5 record results F/O control valve in II-E, 9510/7	uo
KNOMLEDGE	Position of xfer.		Position of xfer. switches				Remore manual- F/O press. con- trolled from F/O A/M, by oper. personnel		Local manual - F/O press. controlled by operating personnel using F/O control valve or bypass valve	Location of question
SKILL	Per	Per mot	Per	Per mot	Per mot		Rer	Per mot	Per	Per not
TASK	Observe all FDB A/M's in auto	3.2.6.1 Mark "yes" in I-D-3	Observe all FDB A/M's not in auto.	3.2.7.1 Mark "no" in II -D-3	3.2.7.2 Mark \$\psi\$ of FDB A/M's in spaces provided in II-D-3 \$\epsilon\$ "no" begide \$\psi\$ of FDB A/M proceed to 1.4.2.4	Observe control of F/O press.	Observe control of F/O press. to be in remote manual	Mark "yes" in II-E proceed to 1.4.2.5	Observe control of F/O press. to be in local man.	Mark "no" in II-E proceed to 1.4.2.5
	3.2.6	3.2.6.1	3.2.7	3.2.7.1	3.2.7.2	4	4.1	4.1.1	4.2	4.2.1
EVENT	1.4.2 Hot Plant	Inspection								

Observe control of FDB

18				TIT THE TOTAL OF						
1.4 FAS PG	COMPLENTS			•						
	TRAINING OBJECTIVE	Given a display of a combustion system w/control of FDB's in remote man., observe control of FDB's in remote manual & record results in II-F, 9510/7		FDB RPH controlled Given a display of a combustion by operating control system w/control of personnel using FDB's in local manual, obmanual throttle serve control of FDB's in local manual & record result in II-P 9510/7						Given a display of a combustion control system W/FDB A/M's in "auto", observe FDB rpm's = within 200, at all stesdy loads 5 record result in II-G, 9510/7
	KNOWLEDGE	FDB rpm controlled by operating per- sonnel using FDB A/M's	Location of question	PDB RPM controlled by operating personnel using manual throttle valves	Location of question		Position of FDB A/M xfer. switches in manual	Position of FDB A/M to be in "auto"		Location of FDB tschs.
	SKILL	Zez	Per mot	Per.	Per mot		Zez	Per		Per
	TASK	Observe control of FDB's to be in remote manual	Mark "yes" in II-F	Observe control of FDB's to be in local manual	Mark "no" in II-F proceed to 1.4.2.6	Observe operation of FUB's	Observe control of EDE's not to be in "auto" proceed to 1.4.2.7	Observe control of FDB's to be in "auto"	Observe proper operation of FDB's	6.2.1.10bserve FDB rpm's at steady boiler load = ± 200 rpm
		5.1	5.1.1	5.2	5.2.1	9	6.1	6.2	6.2.1	6.2.1.]

1.4.2 Hot Plant Inspection

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					NAVTKAEQU IP	CEN /4-C-0151-	1		
19									
PG 19									
	ENTS								
1.4 FAS	COMMENTS								
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	OBJ				of rol "au od a	rrol "au "au load			
	ING				control the true true true true true true true tru	con con th th th th			
	TRAINING OBJECTIVE				Given a display of a combustion control system: W/FDB A/M's in "auto" observe FDB rpm'sf ± zod at steady loads, record results in II-G & II-H, 9510/7	Given a display of a combustion control system w/FDB A/M's in "auro" observe FDB prm's ≠ ± zod at steady loads, record results in Il-G & II-H 9510/7			
	H				en a bust OB A rpm ds,	en a bust DB A erve at at			
					GIV COM W/F FDB LOA	Giv Com V/F v/F obs zod res	_		
		8			<b>e</b>	8	FDB's rpm's must be paralled within 200 rpm at steady boiler loads		
	DGE	Location of FDB tachs.	بيه		Location of RJB tachs	location of FDB tachs	FDB's rpm's must be paralled within 200 rpm at steady boiler loads	4	ç
	KNOWLEDGE	6 E	o uo		e o	0 0	rpm'alle	6 E 6	s of ct to
	3	Locati tachs.	Location of question		Locati	Lachs	FDB's rpm's be paralled v 200 rpm at s	Location of question	Methods of subtraction
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	:3								<b>51</b>
	SKILL								異
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				i es		fte			
		d, Se	0 ~l	oper	ط <b>ه</b>	<b>6</b>	1er +		eady in <u>7</u>
		om's loa chan	11-	er	loa loa	loan s	boi	11 <b>-</b> 6	od,
	TASK	OB ri	트리	nproj 18°s	38 rj	B rj ler inge	B ri	at	1, all
	1	bot a lo	yes'	e for	bod	cha	e F	i ori	arge ence obs
		Observe FDB rpm's at steady boiler load, after a load change = + 200 rpm	Mark "yes" in 11-6 proceed to 1.4.2.7	Observe improper opera- tion of FDB's	Observe FDB rpm's at steady boiler load	Observe FDB rpm's at sceady boiler load, a a load change	Observe FDB rpm's # ± 200 at steady boiler loads	<u>-</u> الا	Mark largest rpm difference, at steady state, observed, in 11-H proceed to 1.4.2.7
		a af		£ 8				Ma	
		.5	6.2.1.3	.2	6.2.2.1	6.2.2.2	6.2.2.3	6.2.2.4 Mark "no" in Il-G	6.2.2.5
		2.1.2	6.2	6.2.2	6.2	6.2	6.2	6.2	6.2

1.4.2 Hot Plant Inspection

EVENT

Observe excess air setting 

		100				1.4 FAS 2	9 N
		TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS	
on On	7.1	Determine "normal" setting	Question operating personnel	Fermissible ranges overload burners - 50% full power 56-60%	Determine, from operating personnel, excess air adj. normal setting		
	7.1.1	Chserve "normal" setting <u>Per</u> of excess air adjuster	Per	Location of indicator on console. Normal = 50% (O/L) 56060% (F/P)	Given a display of a comb. control system w/excess sir setting normal, observe proper setting, & record results in II-I 9510/7		
	7.1.1.3	7.1.1.1 Mark "yes" in II-I proceed to 1.4.2.8	Per mot	Location of question			
	7.1.2	Observe setting of excess air adjuster not to be normal	Per	[1.4.2.7.1.1]	Given a display of a comb. control system Wexcess air setting not normal observe setting & record result in II-I, 9510/7		
	7.1.2.1	7.1.2.1 Mark "no" in II-I proceed to 1.4.2.8	Per mot	Location of question			
	∞	Observe combustion control system during boiler load change					
	8.1	Observe that excess air setting is not changed during boiler load change	Per	Location of excess air adj. on console (no smoke in periscope)	Given a display of a comb. control system in auto. during a boiler load change, observe excess air, adj. boiler master A/M, 'FDB A/M stations & record results in II-J 9510/7		
	8.1.1	Mark "yes" in space provided in II-J	Per mot	Location of question			
	8.2	Observe that excess air adj. is changed during boiler load change	Per	Location of excess air adj. on console	v		* 1

1.4 FAS PG 21	COMPLENTS												
	TRAINING OBJECTIVE												Given a display of a comb. control system in auto.
	KNOWLEDGE	Location of question	Location of A/M	Location of question	Location of A/M	Location of question	Location of A/)'s	Location of question	Location of A/M's	Location of question			Location of stm. press.28age (1275 ps1 + 10%
	SKILL	Per mot	Per	Per mot	Per	Per mot	Per	Per mot	Per	Per mot			Per
	TASK	Mark "nd' in II-J in space provided	Observe boiler A/M bias not changed during boiler load change	Mark "yes" in space provided in II-J	Observe boiler A/M bias changed during boiler load change	Mark "no" in space provided in II-J	Observe FDB A/M bias not to be changed during boiler load change	Mark "yes" in space provided in II-J	Observe FDB A/M bias is changed during boiler load change	Mark "no" in space provided in II-J	<pre>If II-C is "yes" proceed to 1.4.2.9 if II-C is "no" proceed to 1.4.2.10</pre>	Observe control of steam press. during boiler load change	Observe correct steam press. is maintained as boiler load is changed
		8.2.1	8.3	8.3.1	8.4	8.4.1	8.5	8.5.1	9.8	8.6.1		o,	9.1
	EVENT	1.4.2 Hot Plant	inspection										

					1.4 FAS P	PG 22
	TASK	SKILL	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS	
9.1.1	Mark "yes" in 11-K proceed to 1.4.2.11	Per not	Location of quest.	Location of quest. Observe proper control of steam press. during boiler load change & record result in II-K 95.0/7		
9.2	Observe that correct atm. press. Is not maintained as boiler ioad is chanb d	Per.	Location of stm. press. gage (allowed 1275 ps1 $\pm 10$ %)	Given a display of a comb. control system in auto. observe that proper steam press. is not maintained during boiler load change, & record result in II-K 9510/7		
9.2.1	Mark "no" in II-K proceed to 1.4.2.11	Rer mot	Location of question			
10	Question operating personnel for reasons why comb. control system not in full auto.	Eval.	Sys. oper. (ask knowledgable personnel)	Given a display of a comb. control system not in full auto. solicit reasons for not being in full auto. 6 record in "remarks" section 9510/7		
10.1	Record answers in "remarks' section	Per mot.	Location of "remarks" sec. (back of gage)			
7	Observe feed A/M					
11.1	Observe feed A/M to be in auto	Per	Location of A/M position of xfer. switch	Given a display of feed system w/feed A/M in auto. observe feed A/M in auto 6 record result in II-M 9510/7		
11.1.1	Mark "yes" in II-H proceed to 1.4.2.16	Per mot	Location of quest.			
11.2	Observe _eed A/M to be in 'man'	Per	Location of A/M position of xfer. switch	Given a display of feed system w/feed A/M in "man" observe feed A/M not in auto 6 record result in II-M, 9510/7		

1.4.2 Hot Plant Inapection

TRAINING OBJECTIVE			Given a display of feed valve in remote manual control, make observation, 6 record result in II-N 9510/7		Given a display of feed valve in local manual make observation, & record result in II-N 9510/7		Sys. oper. (quest. Given reasons by maint. maint. personnel personnel for feed sys. for reasons) in locsl man. evsluate for valid reasons, & record in 'temsrks' section of 9510/7		
KNOWLEDGE	Location of quest.		Location of feed A/M position of feed A/M xfer switch	Location of quest.	Location of feed A/M operating personnel controlling feed valve in local manual at valve	Location of quest.	Sys. oper. (quest. maint. personnel for reasons)	Location of "remarks" sect.	
SKILL	Per mot		Per	Per mot	Per	Per mot	Diag.	Rar mot	
TASK	Mark "no" in II-M proceed to 1.4.2.12	Observe manual control of feed control valve	Observe operating personnel controlling feed valve using feed A/M in manual	Mark "yes" in II-N proceed to 1.4.2.14	Observe operating personnel not using feed A/M to control feed valve	Mark "no" in II-N proceed to 1.4.2.13	Explain necessity for ocal manual operation of feed control valve	Make notation in remarks <u>Par mot</u> section if II-M is "no" proceed to 1.4.2.17 If II-M is "yes" proceed to 1.4.2.14	Observe boller water level at steady boller load
	11.2.1	12	12.1	12.1.1	12.2	29.2.1	13	13.1	14
SVENT	1.4.2 Hot Plant Inemetition								

COMMENTS									
TRAINING OBJECTIVE	Given a display of feed, system in auto W/steady boiler load observe proper W/L & record results in II-P 9510/7		Given a display of feed sys. in auto. W/steady boiler load, observe improper W/L & record result in II-P 9510/7				Given a display of feed sys. in auto. observe proper control of W/L during boiler losd change & record results in II-Q 9510/7		Given a display of feed systin auto., observe improper control of W/1 during boiler load change, & record results in II-Q 9510/7
KNOWLEDGE	Location of boller gage glass (W/L-NWL + 1/2 " is per- missible)	Location of quest.	Location of boiler gage glass (W/L = NWL ± 1/2" permissible	Location of quest.			Location of gage glass (W/L = NWL + 4" during change is allowed)	Location of quest.	Lucation of gage glass (W/L exceeds + 4" from NWL during change)
SKITT	Disg. (relation of actual & desired W/L)	Per mot	<u>Diag.</u> (relation of actual & desired W/L)	Per not			<u>Diag.</u>	Per mot	J <b>Diag.</b>
TASK	Observe proper water level	Mark "yes" in II-P proceed to 1.4.2.15	Otserve W/L not at p:oper level	Mark "no" in II-P	Proceed to 1.4.2.16	Observe bol!er W/L during boiler load change	Observe proper control of boiler W/L	Mark "yes" in II-Q proceed to 1.4.2.16	Observe improper control <u>Djag.</u> of boiler W/L
	14.1	14.1.1	14.2	14.2.1		15	15.1	15.1.1	15.2
	æ								
EVENT	1.4.2 Hot Plant Inspection								

1.4 FAS PG 25	COMPLENTS									
	TRAINING OBJECTIVE			Given a display of feed sys. in auto. observe proper S/F xmtr. 6 F/F xmtr. 0/P, 6 record results in I:-R 9510/7		Given a display of feed sys. in auto. observe improper SF xmrr. 6 F/F xmrr. 0/P's & record results in II-R & II-S, 9510/7			Given a display of feed sys. not in auct solicit reasons for not being in auto from operating personnel, & record in remarks section, 9510/7	
	KNOWLEDGE	Location of quest.		Location of gages (1%6 psi)	Location of quest.	Location of gages (1% m.o pai)	Location of quest.	Location of quest.	Sys. oper. (ask knowledgable per sonnel)	Location of "re- marks" section
	SKILL	Per not		Diag.	Per mot	Diag.	Per mot	Per mot	Eval.	Per mot.
	TASK	Mark "no" in II-Q proceed to 1.4.2.16	Observe S/F xmtr. & F/F xmtr. 0/P's at steady boiler load	Observe S/F xmtr. O/P 6 F/F xmtr. O/P = +	Mark "yes" in II-R proceed to 1.4.2.18	Observe S/F xmtr. O/P 6 F/F xmtr. O/P 7 + 2%	Mark "no" in II-R	Mark actual S/F xmtr.  0/P & F/F xmtr. 0/P in spaces provided in II-S proceed to	Question operating personnel for reasons why feed sys. not in full auto"	Record answers in "remarks" section
		15.2.1	16	16.1	16.1.1	16.2	16.2.1	16.2.2	17	17.1
	EVENT	1.4.2 Hot Plant	Inspection							

PG 26							
1.4 FAS PG 26	CONSCENTS						
	TRAINING OBJECTIVE		Given a display of a comb. sys. at steady boiler load, in full auto. observe proper operation of low sig. selector, & record results in II-U 9510/7		Given a display of a comb. sys. at steady boiler load in ull auto., observe improper operation of low signal & record results in II-U		
	KNONLEDGE		Location of indicators (sys. oper low signal operation)	(Location of quest)	Location of indicators (sys. oper-low signal operation)	Location of queat.	Loation of quest.
	SKILL		Dieg.	Per mot	Diag.	Per not	Per mot
	TASK	Observe fuel loop at steady boiler load	Observe FO A/M auto O/P Disg. in suto = boiler A/M O/P	18.1.1 Mark "yes" in II-U proceed to 1.4.2.19	Observe FO A/M auto O/P in auto ≠ boiler A/M O/P	18.2.1 Mark "no" in II-U	18.2.2 Mark F/O A/I: 0/P & briler A/M 0/P in II-V proceed to 1.4.2.19
		18	18.1	18.1.1	18.2	18.2.1	18.2.2
	EVENTS	1.4.2 Hot Plant	Inspection			15/	

END OF HOT PLANT INSPECTION

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Applicable commentsGiven a completed 9510/7 Part II, concerning system explain deficiencies in "remarks" operation & def- section telencies, listed in Part II 9510/7 knowledge of comb. & fee' sys. oper.

Complete remarks section <u>Per mot diag</u>, of 9510/7

n

	COMMENTS	Tasks 1, 2 3 are commuto all P/M procedures	Deck contain not only Accards but work center	space 1, 2 & 3 wf preface all following F			This could also be infmation from watch stander that boiler is secured		
•	TRAINING OBJECTIVE	Locate & extract information from W/S in order to identify correct maintenance requirement card (MRC)	Discriminate between MRC required and all other MRC's	Locate & extract tool and maintenance procedures from MRC's			Identify gage indications 6 valves that will indicate system is not in use	Technique of safety wiring valves	Writing correct & complete information on tags and placing tags securely on valves
	KNOWLEDGE	Frequency coding & P/M calendar	MRC series no. location on card	MRC information format			Acceptability of console & plant indications to ensure system is not in use	Location of draft gage sensing valve in system	Information to be written on tag
	SKILLS	Perceptual - Locate his name by scanning W/S & locate P/M to be per- formed	Memory -	<pre>PMC IEXT letrieval - E.tract maintenance pertirent information from MRC</pre>			Perceptual & Memory - Evaluates gage indica- tions to ensure control is not in use	Motor - Organizational draw safety wire from stowage & applies to valve	
	TASKS	Extracts P/M info from W/S	Pulls MaC from BT work center de.t	Determines from the MRC Specific tools and maintenance required	A observes iront panel indications on Acc console	B observes Plant Indications	Ensures control system is not in use	Wires draft gage sensing valve shut	Tron diair gage sensing valve
		i.	2	ë.	4	'n	•		œ
	SYS. OPER.	Planned Maintenance (P/M)					P/M air flow XMTR impulse Lines. L-278		
	EVENT	Surveys Weekly Schedule (W/S)				155	Begins Maint. Procedure		

	<b>1</b> 1 8	N.	<b>AVTRAEQ</b> U	IPCEN 74-C-0	151-1			
COMMENTS	These forms will vary from ship to ship but they follow a general pattern							,
TRAINING OBJECTIVE	Filling out ships tag out form	Identify correct tools listed on MRC	Proper technique of dis- connecting airtight fittings without damage	Proper technique of making up airtight fittings and identification of acceptable air source	Importance of having clear path for blow out	Acquire correct methods of utilizing compressed air to clean out lines		
KNOWLEDGE	Information required for filling out ships form and which supervisors to turn in to. Tag out procedure will very if ship is at ses or in port.	Hand Tools	Location of impulse lines	Location of acceptable air source	Location of sensing line valves	Ruptured diaphram damage could occur		
SKILLS	Organization - finding appropriate officers around ship to sign out tag out sheets	Organizational	Motor - Use hand tools to disconnect fittings	Motor - Use of hand tools to make up fittings	Motor - Opening valves	Мобок	Motor -	Motor - Use hand tools to make up fittings
TASKS	Carries out tag out procedure	Assembles tools listed on M.C L 278	Disconnects Impulse Lines at XMTR	Attaches L pair hose to fire box impulse line	Checks sensing line valves open	Blows through lines with L.P. air to clean out dirt and combusion deposits [Saution: do not blow air into XMTR connections]	Removes LF air hose from fire box impulse lines	Aeconnects impulse lines at transmitter
	9. 9	10.	11.	12.	13.	14.	15.	16.
SYS. OPER.	P/M Air Flow XMTR Impulse Lines L-278 (Cont'd)							
SYS.	P/M Air ) XMTR Imp Lines L- (Cont'd)							
EVENT	Maint. Pro- P/M Air Flow cedure (Cont) XMTR Impulse Lines L-278 (Cont'd)							

COMMENTS

TRAINING OBJECTIVE		Proper technique for somp tests of fittings					
KNOWLEDGE				Indication of leaks			
SKILLS		Perceptual - Soap solution consistency		Mator - apply soap solution to fittings		Perceptual - motor looks inside clesns out look inside some more	
TASKS	<ol> <li>Cuts in signal air &amp; tests for leaks</li> </ol>	A makes up soap solution	B opens valve	C spplies soap solution to fittings	Decision - is it good or bad	Cleans fire box impuise line moisture setting chamber	23. Cleans wind box impulse line
	17.	18.	19.	20.	21.	22.	23.
SYS. OPER.	Maint. Pro- P/M Air Flow cedure (Cont) XMTR Impulse	(Cont'd)					
EVENT	Maint. Pro- cedure (Cont)						

Motor - Organizational As 12 B blows through line with LP air to clear line of dirt 6 combustion deposits Removes LP air hose from fire box impuise lines

Reconnects wind box impulse lines

27.

26.

Return tools 5 accessory gear to stowage

Hose stowsge

Location of acceptable Proper technique of air source making up air tight fittings

Motor - Use of hand tools to make up fittings

A attaches LP air hose to wind box impulse line

24.

25.

As 12

COMPLENTS			Preceded bywar 1, 2 & 3 of APR Page 1	ZQUIPCISN 74	4-C-01:	51-1			
TRAINING ORJECTIVE		Importance of reporting complation of tag out procedure	Identify gage indications and velues that will indicate sye, is not in use			Corract techniqua of blow down procedure			Frame of referenca for what is conlin a fire room
KNOWLEDGE		Completing ships tagout form	Acceptability of coneole & plant indicatione to ensure distributions to ensure the consure the control of the c	system to not the control of the con	Location of Valve	Locetion of Drain Valves	Location of Drein Valvee		
SKILLS		Organizational - as 7	Perceptual & Memory - Evaluate gage indica- tions to determine if	or is in remote manual	Hotox -	Molor -	Motor -	Perceptual	Kineathetic Discriminate between hot 6 cold by touch
TASKS	Removes wire 6 safety teg from draft gage sensing velve and opens draft gege sensing valve	Completes tag out pro- cudure	Ensures control system is not in use or is in remote manual mode of operation	A requests topwatch to instruct console operator to shift to remote manual if sys. is in use and in auto mode	Shuts sensing valve on top of settline chamber	Open settline chamber drain valves slightly and blow until cleen steam appears	Shuts settline chamber drain valve	Obetrvea settline chamber	Allows settline chamber to condense until cool to the touch
	28.	29.	÷		2.	3.	4	۶.	
SYS. OPER.	P/M Air Flow XMTR Impulse Lines L-278 (Cont'd)		P/M Blowe downstream pressure con-	impulse lines MRC L-279 .2 hours					
EVENT	Maint, Pro- cedure (Cont'd)		Scheduled						

•	1
3	E

				Total total	σ	
		Full system pressure	Perceptual - Motor Observes installed gage to determine if controller is fully pressurized	Open sensing valve fully	œ <sup>°</sup>	
	Correct techniques of repressurisation of high press & temp. componants	Results of application at high temp stream or water on bellows	Parceptual - Motor - Observes installed gage while opening valve	7. Cracks sensine line valve open slightly to slowly pressurize controller [Caution: Steam or water to enter bellows	P/M Blows 7. downstream pressure con- troller impulse lines MRC L-279 .2 hours (Cont'd)	Scheduled (Cont'd)
COMMENTS	TRAINING CAJECTIVE	KNOMLEDGE	SKILLS	TASKS	SYS. OPER.	EVENT

9. Informs top watch that controller's back in service

P/M clean TASK NOTE: The following P/M component procedure applies to the components poppet valves listed.

MRC L-280
1.5.hours 1. Low signal selector Scheduled

2. High signal selector

Selector relay Ċ,

Manual signal generator 4

Fuel/air ratio relay s.

Automatic/manual signal generator 9

Delta "P" XMTRS 7.

	TASKS	SKILLS	KNOMLEDGE	TRAINING OBJECTIVE	COPPLENTS
4	Ensure controls are not in use	Perceptual & Memory - Evaluates gage indi- cation to ensure control is not in use	Acceptability of consols & plant indications to ensure control sys is not in use	Identify sage indications & velves that indicate sys. ie not in use	
5	Assemblee tools	Organizational - remove Identify hand toole	Identify hand toole	Assemble & inventory	have nev
	A. Fleehlite	toole from stowege		cools required	PREE RAGS"
	B. Lint Free Regs				gineering
	C. Allen Wrench Sec				ell pro-
	D. S" Adjusteble Wrench				liet them
	E. 1/2 Pint Inhibited Methyl Chloroform				
<u>ب</u>	3. Remove component cover	Motor - Allen wrenches to remove screws	Location of component	Locetion of component Poppet valve cleaning procedure	
4	Shut component eir supply	Motor - shuting valves	Location of eir eupply		
×.	5. Remove air line	Molor - Disconnecting sir fittings			
٠.	Loos lock nut	Motor - Use ADJ wrench to loosen lock mut	Location of lock nut	Identify component parts	
7.	Remove poppet velve from	Notor -			

SYS. OPER.

SYS. OPER.		TASKS	SKILLS	KNOWLEDGE	TRAINING OBJECTIVE	COMMENTS
P/M Clean component poppet valves MRC L-280 (Cont'd)	_	WARNING: Ensure at least two persons are in work area when using inhibited methyl chloroform	Motor - Facility using dangerous solvents	Danger of prolonged contact with methyl chloroform	Handling of dangerous solvents and the	What constituded
	ø.	Provide adequate ventilation	Organization & Per- reprual - detect when fumes are too strong	Danger of inhalation of methyl chloroform—Loration of ven-	rrintements during use	lation has no been defined
	6	Clean poppet valve with methyl chloroform	Mator			
	10.	Clean valve stem	Motor			
	Ξ.	Clean inlet 6 exhaust seats	Motor			
	12.	Inspect inlet 6 exhaust seats for nicks and pitting	Perceptual - Kinesthetic Inspect visually and by feel		Correct inspection procedures	
	13.	Reinstall valve in component	<u>Perceptual - Motor</u>		Screw valve in place in component until stem just touches exhaust seat, indicated by observing valve stem just starts to move away from inlet seat	
	14.	Hold valve ano tighten lock nut	Motor			
	15.	Reinstall air line	MOEOL		Proper technique of making up air tight fittings	
	16.	Open component air supply	Motor	Location of Valve		•

Scheduled

COMMENTS		This will apply for all components listed	
TRAINING OBJECTIVE	Proper technique for soap tests of air filters	Acceptability of Identify gage indications console & plant & valves that indicate indications to boiler out of service ensure belier not in use  Location of air supply Locate & identify system valve for each com— air supply valves	
KNOWLEDGE	Indications of leaks	Acceptability of console & plant indications to ensure belier not in use Location of air supplyalve for each com-	ponent
SK1LLS	Perceptual - Soap solution consistency Motor - Applies soap solution	Perceptual - Memory - Evaluates gage in-dications to ensure boiler not in use Organizational - Remove tools from	stowage
TASKS		i i	A. LP air hose
		1. 1. 2	
SYS. OPER.	P/M Clean component poppet valves MRC L-280 (Cont'd)	P/M Clean component valves MRC-L281	
EVENT	Scheduled	Scheduled	

Allen Wrench set Lint free rags LP air hose

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SYS. OPER.

FV ENT

P/M Clean

Scheduled

valves MkC-L281 (Cont'd)

6 Ma

Location of air supply Locate & identify system valve for each com————————————————————————————————————	Escapement valve cleaning procedure	Location of screws in Disassemble & identify valve body component parts		Disassemble & identify component parts		Handling of dangerous solvents and the require-	ments during use
Location of air supply valve for each com- ponent		Location of screws in valve body		Component upper seat		Danger of prolonged contact with methyl chloroform	Location of ventila- tion switches - Danger of inhalation of methyl chloroform
Motor - closing valve	Motor - Use Allen wrench to remove screws	Motor - Use Allen wrench to remove screws	Motor -	Motor - Use 6" adj. wrench		Motor - facility using dangerous solvents	Organizational - Per- ceptual - detect when fumes are too strong
Isolate each component by shutting air supply valve	Remove component cover	Remove Allen screws from escapement valve body	Remove escapement valve as a unit	Loosen lock rut and turn upper seat counterclockwise until it clears thread - catch valve as it drops out	Clean escapement valve with methyl chloroform	WARNING: Ensure at least two persons are in work area when using inhibited methyl chloro- form	Provide adequate ventilation
e,	4.	5.		7.	œ.		6

					NAVTRA	LEQU I P	CEN :	74-C-	-0151-	i							
	COMPLENTS																
PM 10	TRAINING OBJECTIVE	Correct inspection procedures		Valve reassembly procedure		_	•							(+ 3			
	KNOWLEDGE				What flat means												
	SKILLS	Perceptual-Kinestheric Look for nicks, dents feel for nicks, dents		<u>Motor-Kinesthetic</u> Tighten finger tight	Perceptual-Motor	Motor - Use 6" adj. wrench								9			
	TASKS	<ol> <li>Inspect valve seat for nicks, dents &amp; pits</li> </ol>	11. Reinstall escapement valve	A *ighten valve seat into body using finger pressure only	<ol> <li>Loosen valve seat one flat or 1/6 turn</li> </ol>	<ol> <li>Hold adjustment and tighten lock nut.</li> </ol>	14. Reinstall component cover	15. Open supply air valve	The following $P/M$ procedure applies to components listed.	1. Feedwater Controller	2. Steam/Feed Flow Totalizer	3. Drum Level Totalizer	. Charecterizing Relays	. Air Flow Controller	. Inverting Relay	. Rate Relay	. Toggle Relay
		-4	7		-	-	1	-	E D	1	2	e.	4	Š	6.	7.	œ.
	SYS. OPER.	P/M Clean escapement valves	(Cont'd)						P/M Clean	MAC-L283	TO UE						
	EVENT	cheduled															

9. Set Point Controller

Location of adjustment Importance of leaving and Allen head lock factory preset adjustments alone

Screw

Micro lock cleaning

Location of air

Motor - shutting valves

supply

procedure

Identify correct component perts Location of mounting

SCTEWS

Motor - Use Allen wrench to remove mounting screws Lint free rags should be used to wipe dry

COMMENTS

TRAINING OBJECTIVE

PM 11

KNOWLEDGE

SKILLS

TASKS

SYS. OPER.

EVENT

Acceptability of gage indications to ensure controls not in use

Perceptual & Memory -Evaluates gage indication to ensure

Ensure controls are not in

use

micro lock

valves

P/M Clean

Scheduled (Cont'd)

MRC-L283 1.0 hours

-;

control not in use

Identify gage indications and values that will indicate system is not in use

Assemble and inventory

tools required

Identify hand tools

Organizational - removes tools from

stowage

Assembles tools and msterials

5.

(P. suco)

A. Flashlite

1/2 pint inhibited methyl

Allen wrench set Lint free rags

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æ.

chloroform

Remove component cover

÷.

Location of component

Motor - Use Allen wrench to remove

BCLEWS

Shut component air supply

4.

CAUTION: Do not alter micro lock adjustment or tamper with Allen head lock screw on side of valve mounting base

Remove valve & mounting base as a unit

Š

Clean micro lock valve & wipe

٠,

Motor

Motor - facility using dangerous solvents

WARNING: Ensure at least two persons are in work area when using inhibited methyl chloro-

Danger of prolonged contact with methyl chloroform

Handling of dangerous solvent and the requirements during use

165

SYS. OPER.

EVENT

P/M clean

Scheduled (Cont'd)

valves MRC-L282 (Cont'd)

Mason-Neilan No. 5 lube

ţe.

6" slip joint pliers 6" adjustable wrench

Wire - 24 ga Hand oil can Safety tags

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Ä

Organizational Finding spropriate
officers around ship
to sign out the cag out

Completes tag out procedure

12.

PM 13

FA 14

EVENT

Crack open lat cutout valve Motor Location and start to shut equalizing valve

Kinesthetic -Discriminate between

condensate & cool to the touch

Allow lines to fill with

6

10.

when lines are clear of water

Shut down blow down valve

**.** 

hot & cold by touch

Frame of reference for what is cool in a fire room

Correct Blow Down

Location

Motor - Perceptual

Technique

and the second of the second s

COMPLENTS			NAVTRAEQUIPCE	N /4-C-0151-1		Purpose of this test is to determine that termine that the termine. But 6 water will "Fall as is" on loss of supply air
TRAINING OBJECTIVE					identify gage indications & valves that will indicate system is not in use	Location of air supply Set up of console to test gage. System press air lock system set point
KNOMLEDGE	Location	Location			Acceptability of console & plant indications to ensure sys. not in use	Location of air supply gage. System press set point
SKILLS	Motor Percept.al - Observes gage while manipulating valves	Motor Organizational		•	Perceptual - Memory Evaluates gage indica- tions to ensure control not in use	Parceptus] - Memory. Evaluates air supply gage to determine full system press 65 psi
TASKS		<ul><li>12. Open 2nd cut out valve</li><li>13. Return control to operator</li></ul>	Procedure Same ss L-284	Procedure Same as L-284	. Ensure controls are not in use	. Ensure air supply system is pressurized
SYS. OPER.	Down Fi	MRC-L284 12 (Cont'd) 13	P/M Blow Pr Down Feed Flow MOTR Impulse Lines MRC L-285	P/M Blow Pr Down Steam Flow XFTR Impulse Lines MRC L-286	P/M Test 1. Operation of Air Lock System MCS-825	.2 hours 2.
EVENT					Scheduled	

COMMENTS			NAVIR	VRÓUII	PCIEN 74	-C-015	o1-1		
TRAINING OBJECTIVE	Air lock test procedure	Recognize when relay has tripped			necognize signata before & after		Value of full sys. press	React Procedure	
KNOMLEDGE	Locat. : of air supply olve	Relay : 1d trip at 60 pai. Air lock header pressure 0 psi			rneumatic trans valve should lock in signals		System press should be 65 ps1	System Pressure must be above 60	pai before air lock can be reset
SKIFFS	MOEOK	Diagnostic - Observe relay movement - observe gage			Note what pressures were before and after	valve actuates	Perceptual motor open valve observe	Perceptual Motor Pull air lock release	knob on console
TASKS	Shut air supply valve	Observe toggle relay	Observe following components to inaure signals are locked in.	1. Fuel oil return control valve	2. Forced draft blower control valve	3. Feed water flow control valve	Open air supply valve and presaurize system	Reset air lock aystem	s. Pull air lock release knob
	3.	4	'n				9	7.	
SYS. OPER.	P/M Test Operation of	Air Lock System MRCS-825 (Cont'd)							
EVENT	Scheduled (Cont'd)								

Hold open until control air pressure & air lock pressure are equal

ð.

TRAINING OBJECTIVE	Assemble & inventory tools required									Technique of safety wiring valvee	Writing correct & complete information on tage and placing escurely on valve	Filling out chips tag out forms		Demounting procedure for reducers
KNOWLEDGE	Identify hand tools									Location of inlet and outlet valves	Information to be written on tag	Information required for filling out ship's forms and which supervisors to turn it in to	Location of air supply	Component Parts
SKILLS	Organizational -	storage								Motor - Safety wiring valves using slip joint pliers		Organizational - Finding appropriate officers sround ship to sign out tag out form	Motor	Motor Perceptual. Relieve compression while looking at epring
TASKS	Assemble toole & materials	A. Rag lint free	B. Safety tags	C. Wire 24 8a.	D. 10" pipe wrench	E. Soft bristle brush	F. 8" adj. wrench	G. 6" alip joint pliers	H. 1/2 pint inhibited methyl chloroform	Wire inlet & outlet velves shut	Tag inlet 6 outlet valvee "bo NOT OPEN"	Carries out tag out procedure	Secure air eupply to reducing velve	Loosen lock nut and relieve compression on epring
	1									2.	e.	4	5.	•
SYS. OPER.	P/H Clean &	Preceure	Valves 6	Strainere	MC L-288									
EVENT	Scheduled													

PH 18

Magnostic As	
<b>-</b> 4	
SSM U	
composition washer	in top
Inspect compos:	pressed
14.	

ebove

What is excessive

Diagnostic

Inspect valve for excessive

13.

Vear

Scheduled

ZVENT

COMPLIATS																
TRAINING OBJECTIVE		Reassambly procedure for air reducers		Y strainer procedure										Proper technique for soap teat of fittings		
KNOWLEDGE	Component Parts	Component Parts		Location											Indication of leaks	System pressure
SKILL	Matar	Matar - Use 8' adj.	Mator - Use 10" pipe wrench	Motor - Use 8" adj.			Use soft brush	Perceptual - Look for	Dicesia o testa		Motor	Motor		Parcaptual-Consistency of soap solution	Motor	Parceptual-Motor. Turn adjuating screw while observe press.
TASKS	Replace spring & valve assembly	Replace cap plug	Reinstall valve body in air supply piping	Clean Y type strainer	A. Remove attainer plug	B. Remove strainer basket	C. Clean strainer basket	D. Inspect strainer basket	E. heinstall atrainer basket	F. Reinstall strainer plug	Remove wire 6 safety tag	Open air inlet & ourlet valves	Inspect for leaks	A. make up shap solution	B. applies somp solution to fittings	Adjust reducing valve output pressure
STS. OPER.	15.	16.	17.	18.							19.	20.	21.			22.

Scheduled

EVENT

PM 20

3.	Have operator 11 F.O. system	<ol> <li>Have operator lineup and operate Organizational F.O. system</li> </ol>	Organizational			
;	4. Shut ayatem air inlet valve		Mataz	Location of eir inlet valve		
٠,	5. Release air lock diaphram loading zero	and reduce pressure to	Mutor - Perceptual Observa gage as pressure goes to 0	Location of air lock FO centrol Valve release Calibration proce	FO centrol Valve Calibration procedure	Covered in detail in Corr Maint
•	<ol> <li>Remove apring barrel cap &amp; cotter pin</li> </ol>		Matar	Component Parts		

EVENT	SYS. OPER.	TASKS	SKIIIS	ACUA LIONX	TDAINING OBIECTIVE	S AND THE STATE OF
	# ** ** ** ** ** ** ** ** ** ** ** ** **		34165	KNOWLEDGE	INAINING OBJECTIVE	COMMENTS
	V/M lest Fuel /. Loosen locknut Oil Control		Mator	Component parts		
	Valve Minimum 8. Setting MRC W-868 (Cont'd)	Adjust by turning slotted otem	Motor - Perceptual Turn stem while observing FO press gage	Component parts with Diaphram air pressure at 0 fuel oil pressure chould		
	÷	Hold adjustmert & tighten locknut	Motor	be 4 ps1		
	10.	Reinstall cotter pins and spring barrel cap	Maker			
	11.	11. Open system air inlet valve	Motor	Location		
	12.	12. Reset air lock system	Motor	Location of reset		
	13.	Have operator secure FO service systcm if nut required for service				
		1. Assemble tools & materials	Organizational - Removes Identify hand tools	Identify hand tools	Assemble 6 inventory	
	for Air Leaks MRC L-291	A. Rags	tools from stowage		tools required	
	1.0 hours	B. Water				
		C. Bucket				

3/8" 1/2" 9/16" open end wrenches

6" adjustab. wrench 8" screw driver

l" paint crush

. .;

D. FlashliteE. Líquid soap

COMMENTS								
TRAINING OBJECTIVE	Identify gage indications and values that indicate boiler not in use	soap test procedure						Lesve under psne) clean & free of sosp residue
KNOML#DGE	Acceptability of console & plant indications to indicate boiler not in use	Whst system press should be		Location of controls		Indications of leaks		What fittings have been tested
SKILLS	Perceptual - Memory Evaluates gage indi- cations to ensure boiler is not in use	Perceptual - read gage	Motor - open latches remove screws	Perceptual - Motor turn auto/man selector knob to man. observe auto loading gage de- crease to 0. Turn man reg knob to moin increase	Perceptual - Motor consistence of soap solution	Motor - Perceptual Observe for bubbles	<u>Motor</u> – tighten fittings	Motor - Memory Use rags to wipe up soap residue on all fittings
TASKS	Ensure boiler is secured	Ensure 65 psi air pressure being supplied to system	Remove access panel from front and back of console	Place control sys. in remote manual a. Increase manual loading pressure to max.	Mix soap and water	Apply soap solution to fittings	Correct leakages	Wipe previously soaped fittings dry
		3	4	'n	•	7.	œ	.6
SYS. OPER.	P/M Test Entire System for Air Leaks MRC L-291	(cont a)						

EVENT

COMMENTS			NAVIRAE	MIN	JEN ,	74-0	- 313.	1-1					
TRAINING OBJECTIVE	Leave console in unloaded condition		Identify gage indications 6 values that will indicate boiler not in use	Assemble and inventory	מסומ ובחחום מחומים								
KNOWLEDGE	Location		Acceptability of console & plant indications to indicate boiler not in use	Identify hand tools									
SKILLS	Perceptual - Motor Turn manual reg knob to max decrease ob- serve man loading gage decrease to zero	Mator	Perceptual - Memory Evaluates gage indica- tions to ensure boiler is not in use	Organizational - Remove Identify hand tools	agrantion stoor								
TASKS	Lecrease manual loading pressure to zero	11. Reinstall access panels	<ol> <li>Ensuie boiler is secured</li> </ol>	Assemble tools and materials	A. Safety tags	B. Flashlite	C. Wire brush	D. Wire 24 ga.	E. 6" slip joint pliers	F. No. 1 packing puller	G. 1/2" combination wrench	H. 8" screw driver	<ol> <li>1/4" packing symbol 1433 or Teflon equivalent</li> </ol>
	10.	11.	÷	2.									
SYS. OPER.	P/M Test Entire System for Air Leaks MRC L-291 (Cont'd)		P/M Renew Stuffing Box Packing in Feed Water Flow Control	MAC - S827	s nonc.								

Wires feed stop valve shut

3.

J. Knife

SYS. OPER.	P/M Renew Stuffing Box Packing in	Feed Water Flow Control	MRC - 5827 (Cont'd)										
	4	۶.	vo.		<b>&amp;</b>	6	16.	11.	12.	13.	14.	15.	16.
TASKS	Taga feed stop valve do not open	Carries out tag out pro- cedure	Remove packing gland	Remove old packing	Remove lubricator ring	Remove remainer of packing under lubricator ring	Clean stuffing box and stem	Inspect stem for scoring	Clean packing gland studs	Measure packing around stem and cut 8 ringa to length	Install 2 rings of new packing	Reinstall lubricator ring	Install 6 rings of new packing
SKILLS			<u>Motor</u> - Use 1/2" wrench Component parts to remove packing gland nuts	Motor - Use packing puller to remove packing and lots of patience	dotor - Use package puller to remove ring	Motor -	Motor -	Perceptual - Kineathatic Lock at stem to detect scoring - feel it	Motor - Use wire brush	Perceptual - Motox measure and cut	Mator	Motor	MOLOK
KNOWLEDGE			Component parts	Repack procedure for valves. Correct use of packing pullera.	Component parts				Component parts	Component parts	Butts must be staggered	Component parts	Butts must be staggered
TRAINING OBJECTIVE								Results of stem scoring on packing. What is acceptable scoring.		Methods of Cutting packing butts	Method of inserting packing		
COMMENTS				NAVTRAEQ	UIPCEN	74-C-	0151-	-1					

COMMENTS	At first	with plant	in operation	tighten pack-	leakage	N
TRAINING OBJECTIVE						
KNOWLEDGE						
SKILLS	Motor - Kinesthetic	יוקוות רדאורבון ווחרס				
TASKS	17. Reinstall packing gland	מואן יומואן רוצוורכון זוחרם	18. Lubricate parking gland	as per MRC L-283	<ol> <li>Remove wire &amp; safety tag from feed stop valve</li> </ol>	20. Complete tag out procedure
			18.		19.	20.
SYS. OPER.	P/M Renew	Packing in	Feed Flow	Control Valve	(Cont'd)	